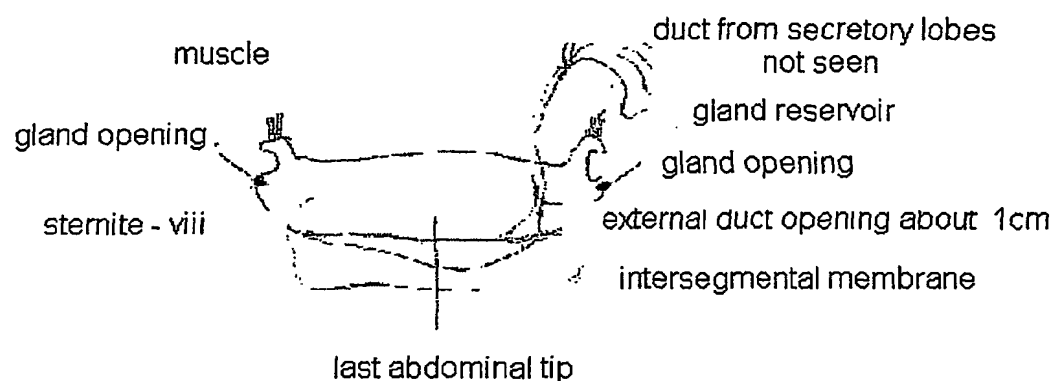
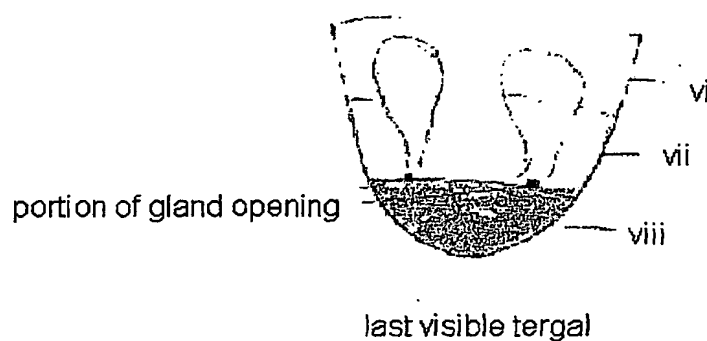


Figure 1**Ground beetle dissection to show the pygidial gland in *Pterostichus melanarius*****Dorsal abdominal tip end****BEST AVAILABLE COPY**

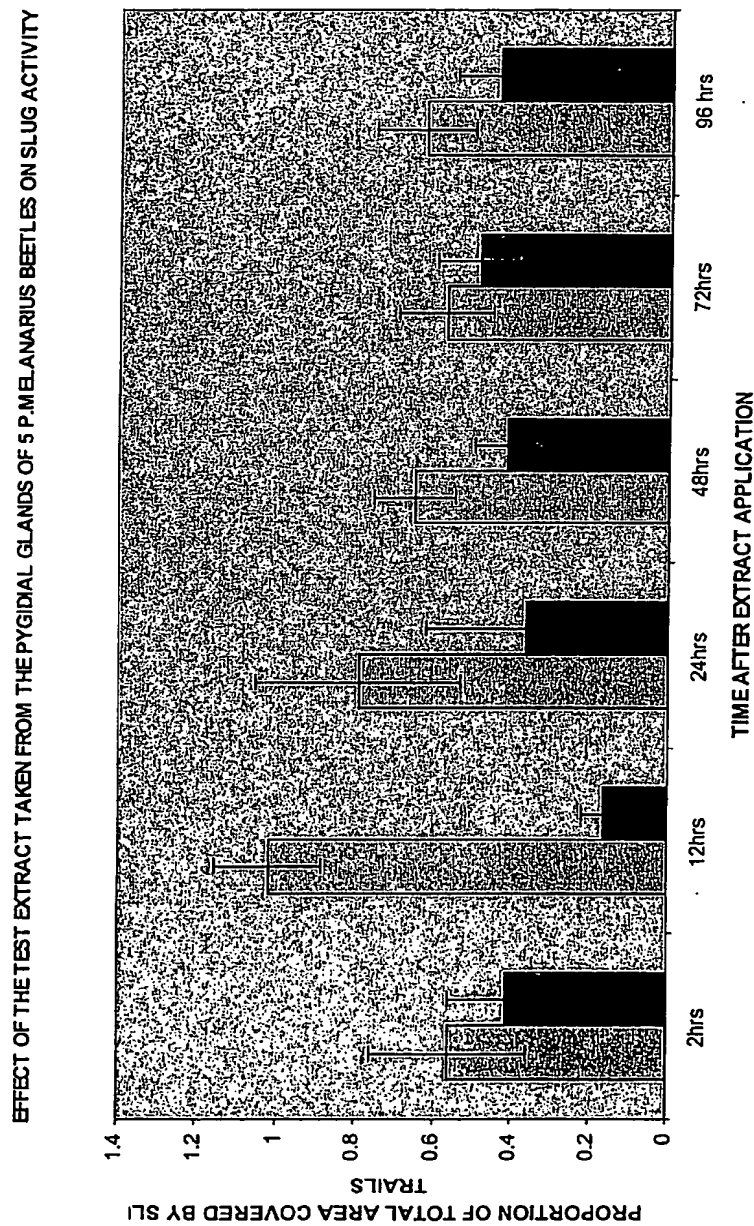
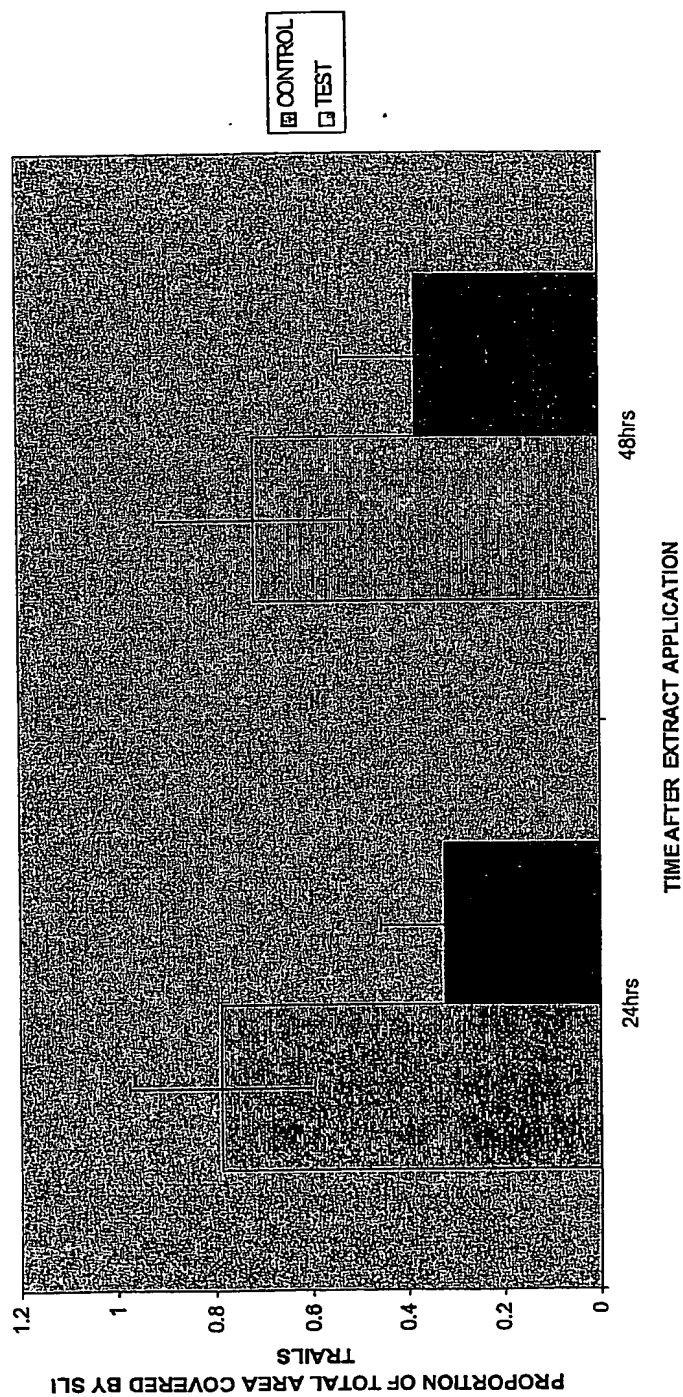


FIGURE 2 The figure shows the proportion of the total area of the petri dish covered by the slug trails during a 24-hour period (arcsine transformed data with 95% confidence limits ($n = 10$ replicates)). The trial was conducted in 2, 12, 24, 48, 72 and 96 hours after the extract was obtained. The test extract was prepared by using five *P. melanarius* beetles in 10ml methanol. A total of thirty beetles were used over the period of 4 days, for this experiment. $Wt/vol = 1.73g/60ml$.

BEST AVAILABLE COPY

EFFECT OF THE TEST EXTRACT TAKEN FROM THE PYGIDIAL GLANDS OF 5 *P. CUPREUS* BEETLES ON SLUG ACTIVITY

The figure shows the proportion of the total area of the petri dish covered by the slug trails during a 24-hour period (arcsine transformed data with 95% confidence limits ($n = 10$ replicates)). The trial was conducted in 24 and 48 hours, after the extract was obtained. The test extract was prepared by using five *P. cupreus* in 10ml methanol. A total of ten beetles were used over the period of 2 days, for this experiment. $Wt/vol = 0.26g/20ml$.

FIGURE 3

EFFECT OF THE TEST EXTRACT TAKEN FROM THE PYGIDIAL GLANDS OF 5 PTEROSTICHUS MADIDUS ON SLUG ACTIVITY

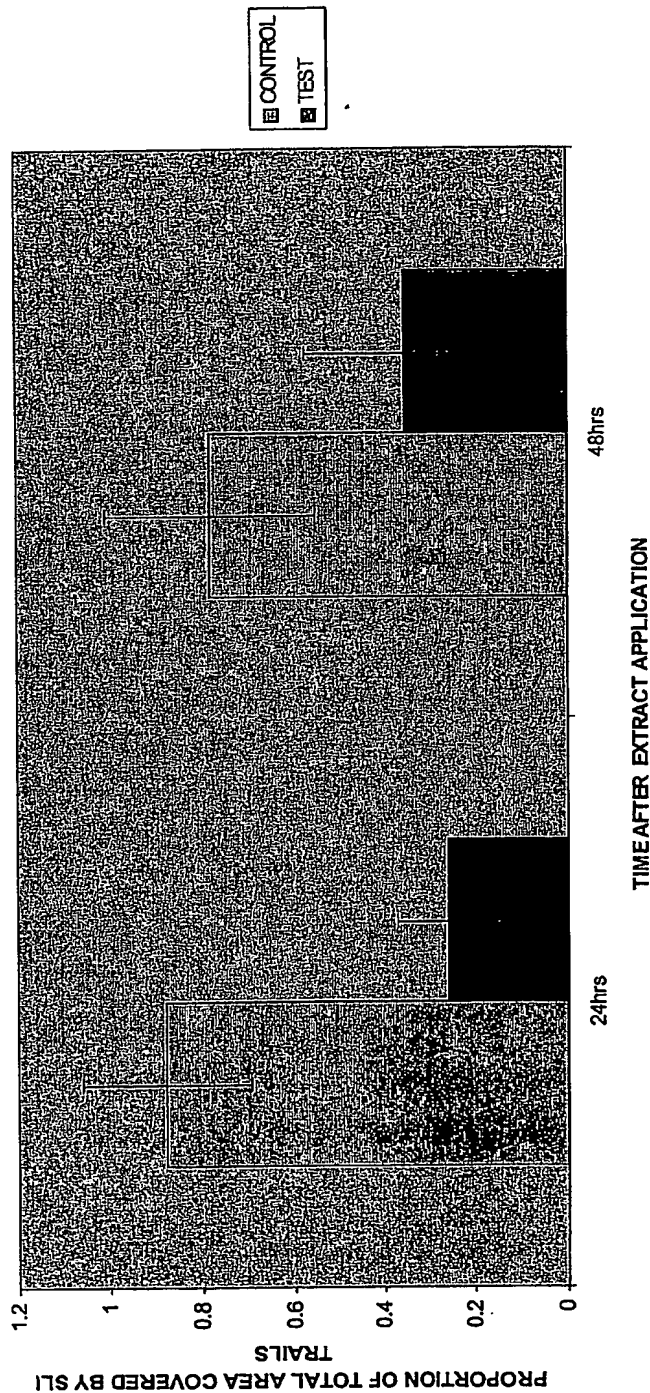


FIGURE 4 The figure shows the proportion of the total area of the petri dish covered by the slug trails during a 24-hour period (arcsine transformed data with 95% confidence limits ($n = 10$ replicates)). The trial was conducted over the period of 2 days, using a total of ten *P. madidus* in 20ml methanol. $W/vol = 0.53g/20ml$.

EFFECT OF THE TEST EXTRACT TAKEN FROM THE PYGIDIAL GLANDS OF 5 HARPALUS RUFIPES BEETLES ON SLUG ACTIVITY

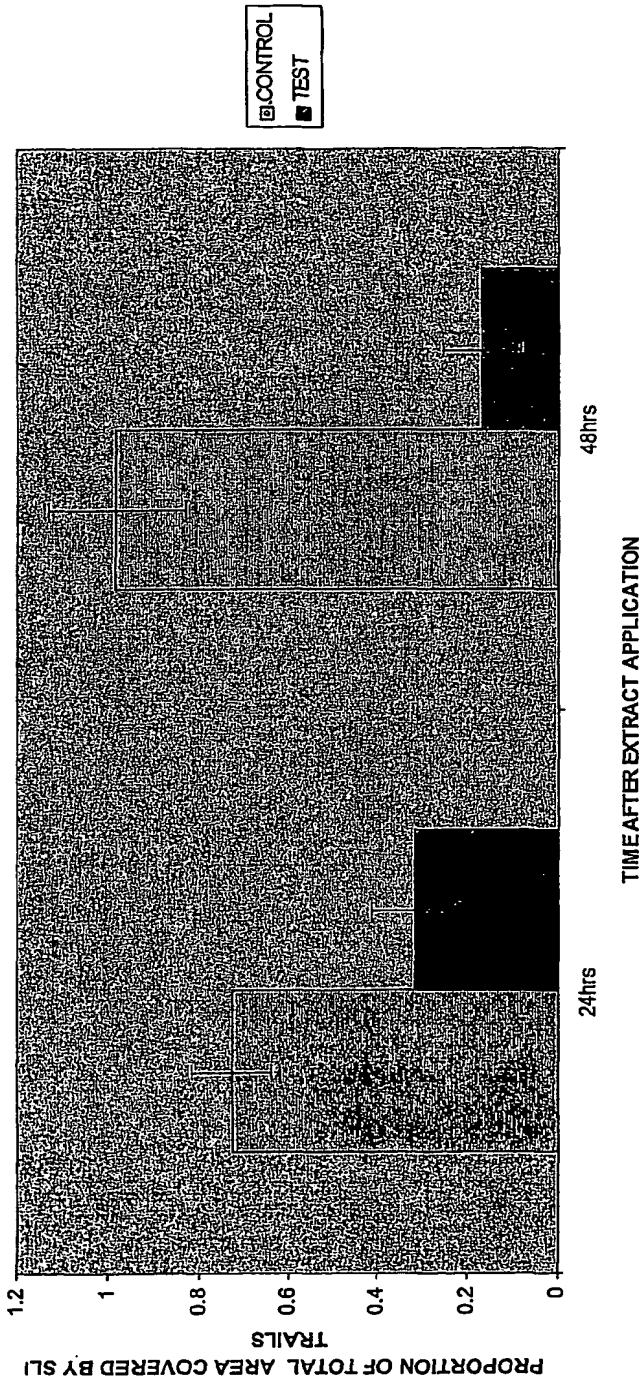
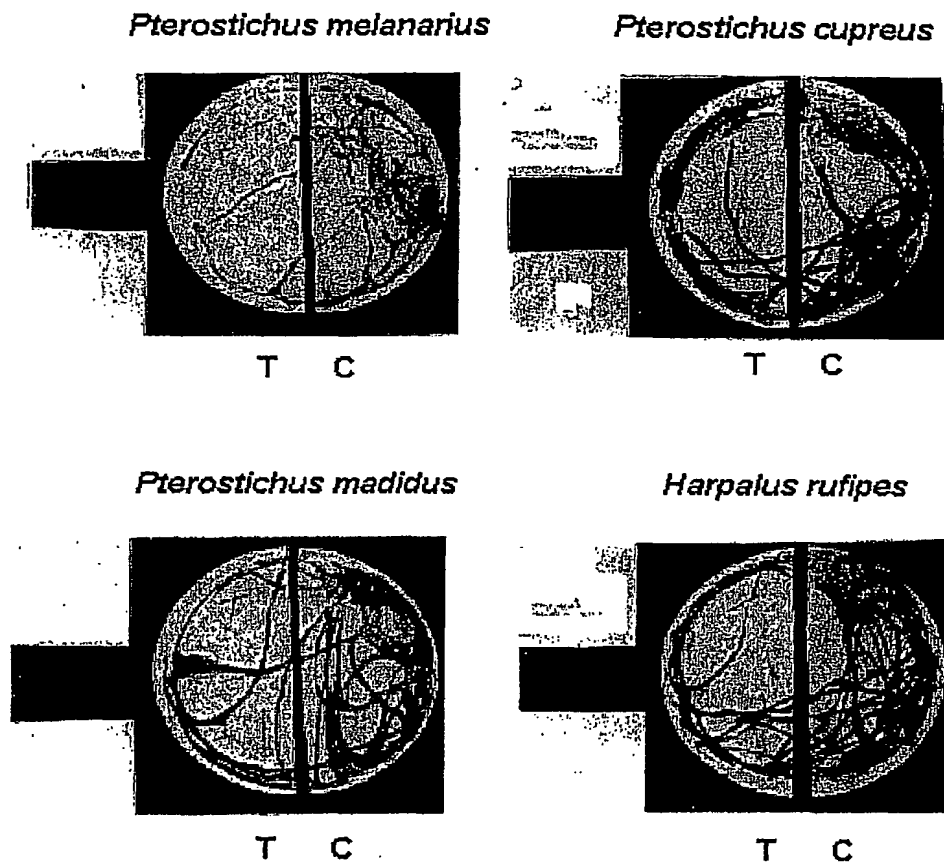


FIGURE 5 The figure shows the proportion of the total area of the petri dish covered by the slug trails during a 24-hour period (arcsine transformed data with 95% confidence limits ($n = 10$ replicates)). The trial was conducted over the period of 2 days as shown using a total of ten *Harpalus rufipes* in 20ml methanol. Wt/vol = 0.49 g/20ml.

Figure 6

Photograph showing slug response to beetle extracts overnight
using the arena test inside the petridishes



The control and test sector is denoted by C and T
under each specimen

**And yes beetle odours can be useful to deter slugs from
feeding onto growing pea plants**

Major glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with methacrylic acid diluted in water (1/100) $\chi^2 = 32.45$

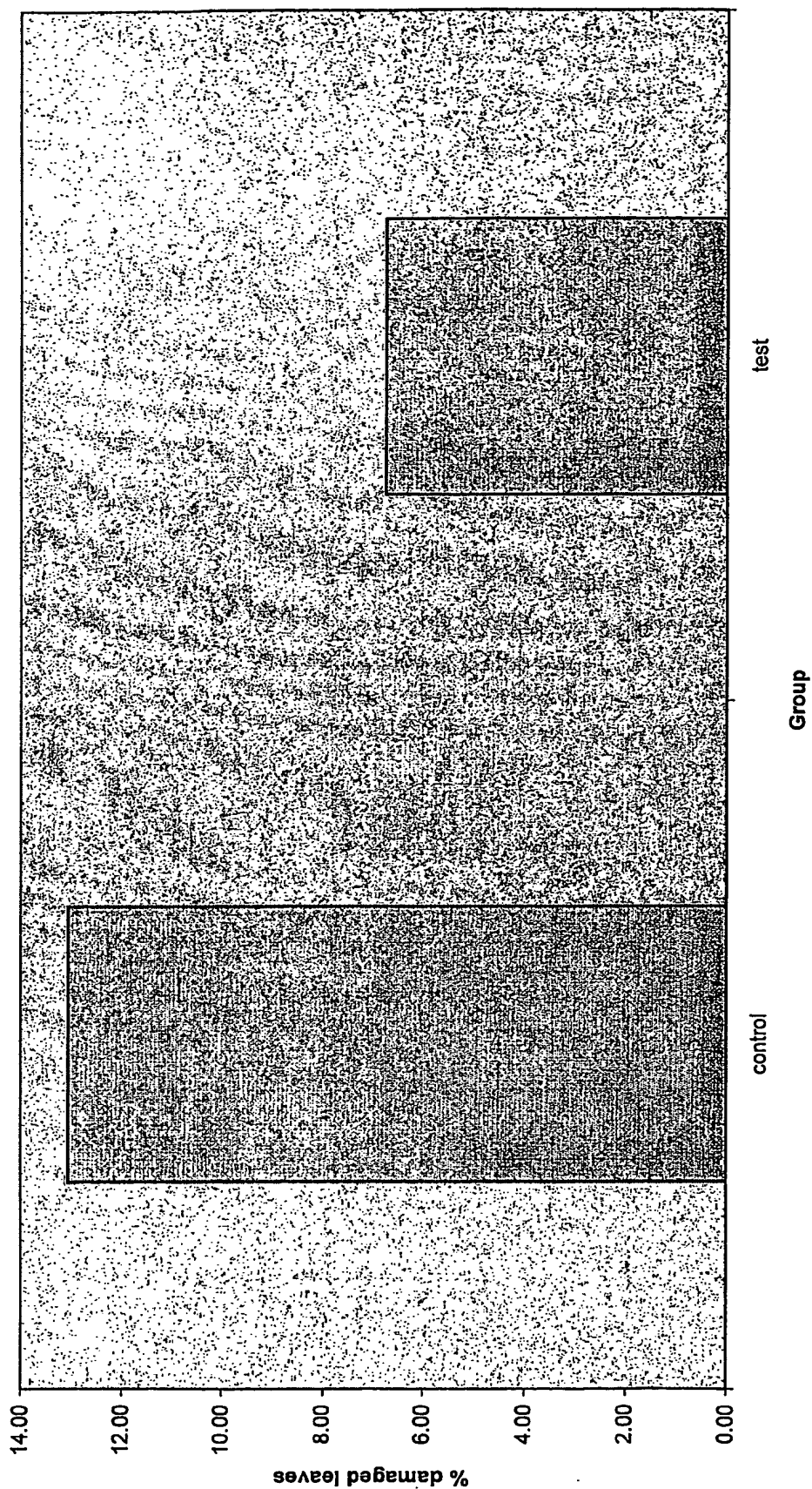


FIG 7

Major Glasshouse studies to show the effects of *D.reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with methacrylic acid diluted in water (1/100) chl-sq = 37.774

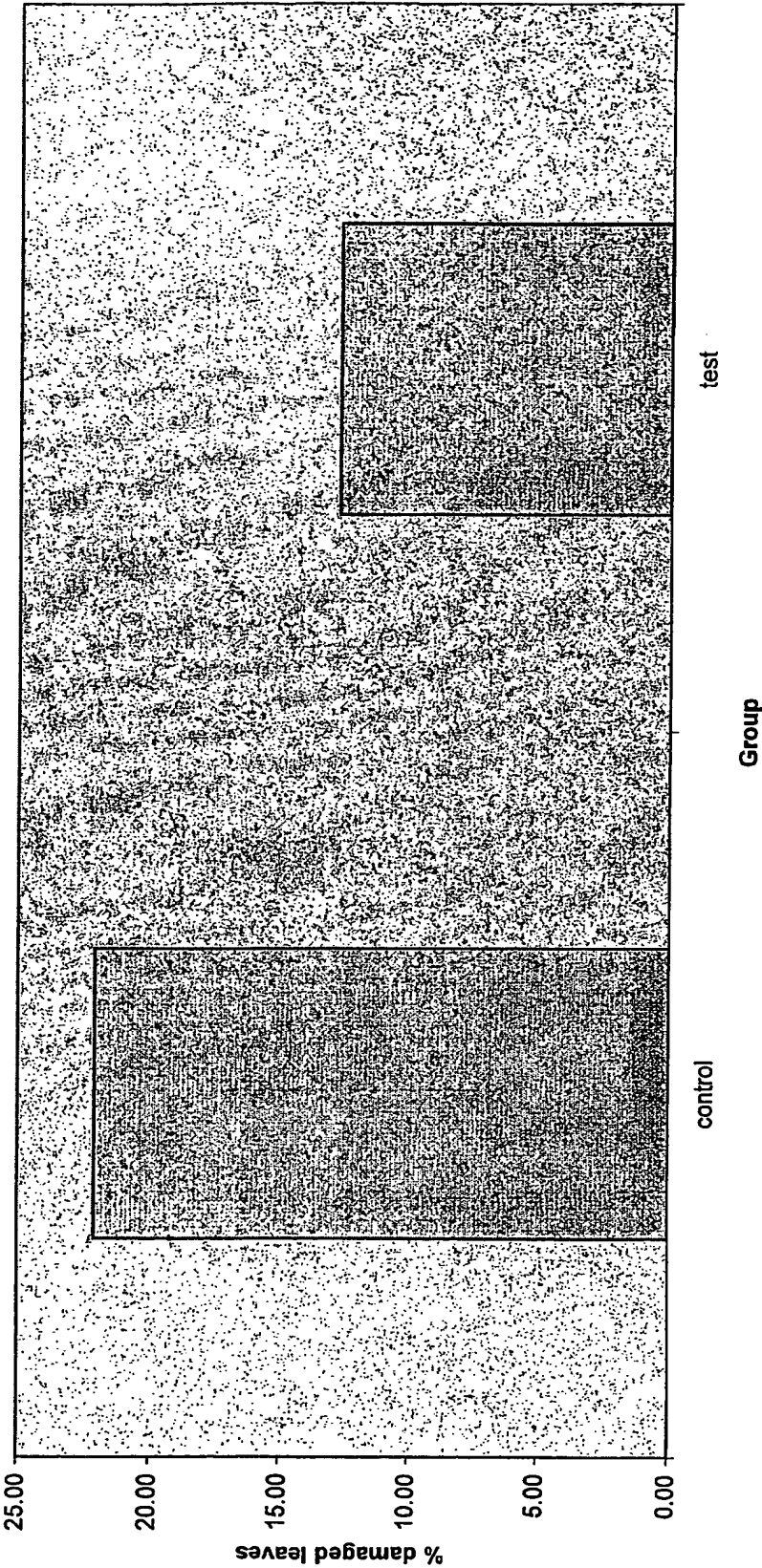


Fig 8

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with crotonic acid diluted in water (1/100) χ^2 -sq = 0.504

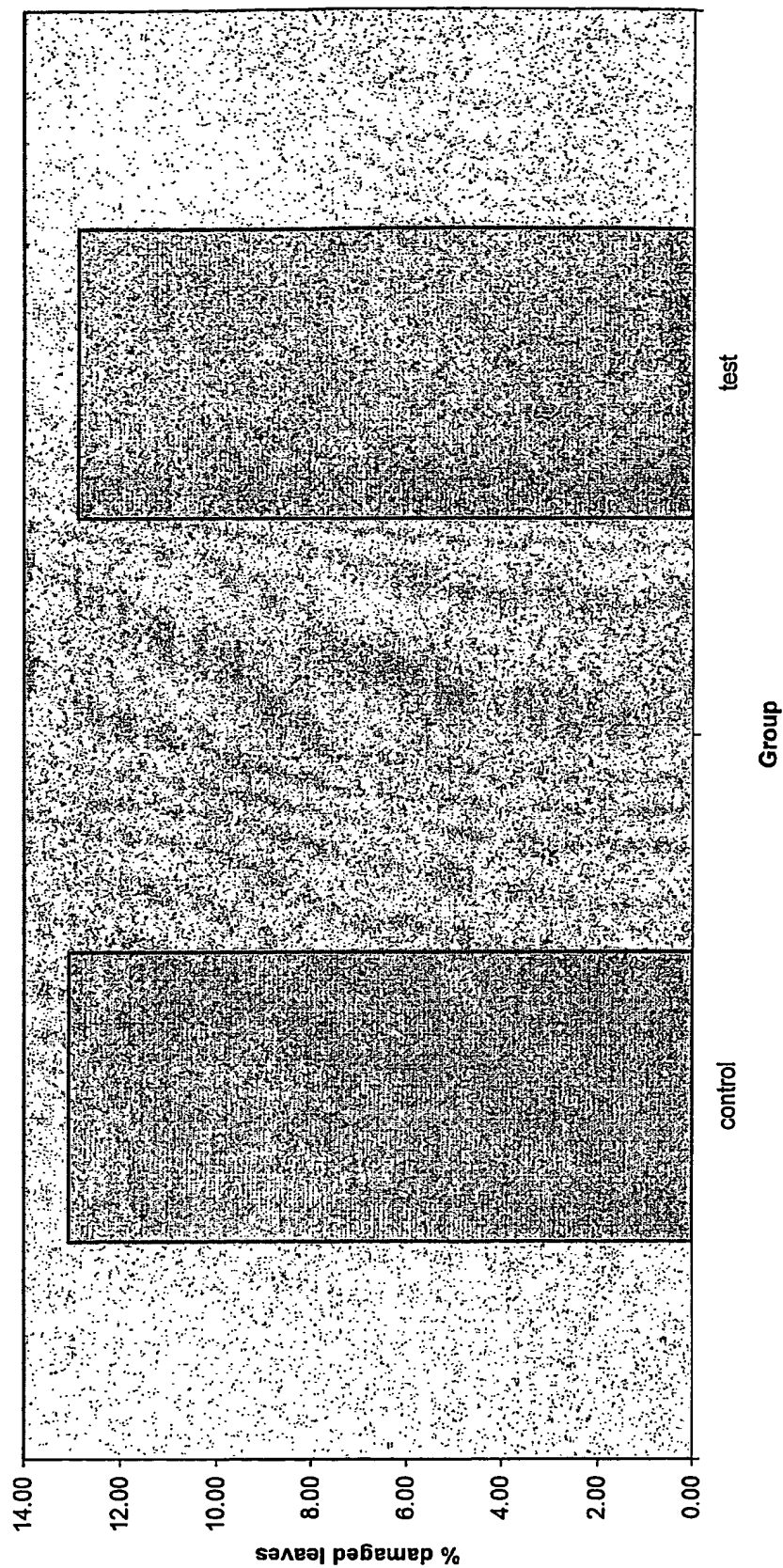


Fig 9

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with crotonic acid diluted in water(1/100) χ^2 -sq = 2.281

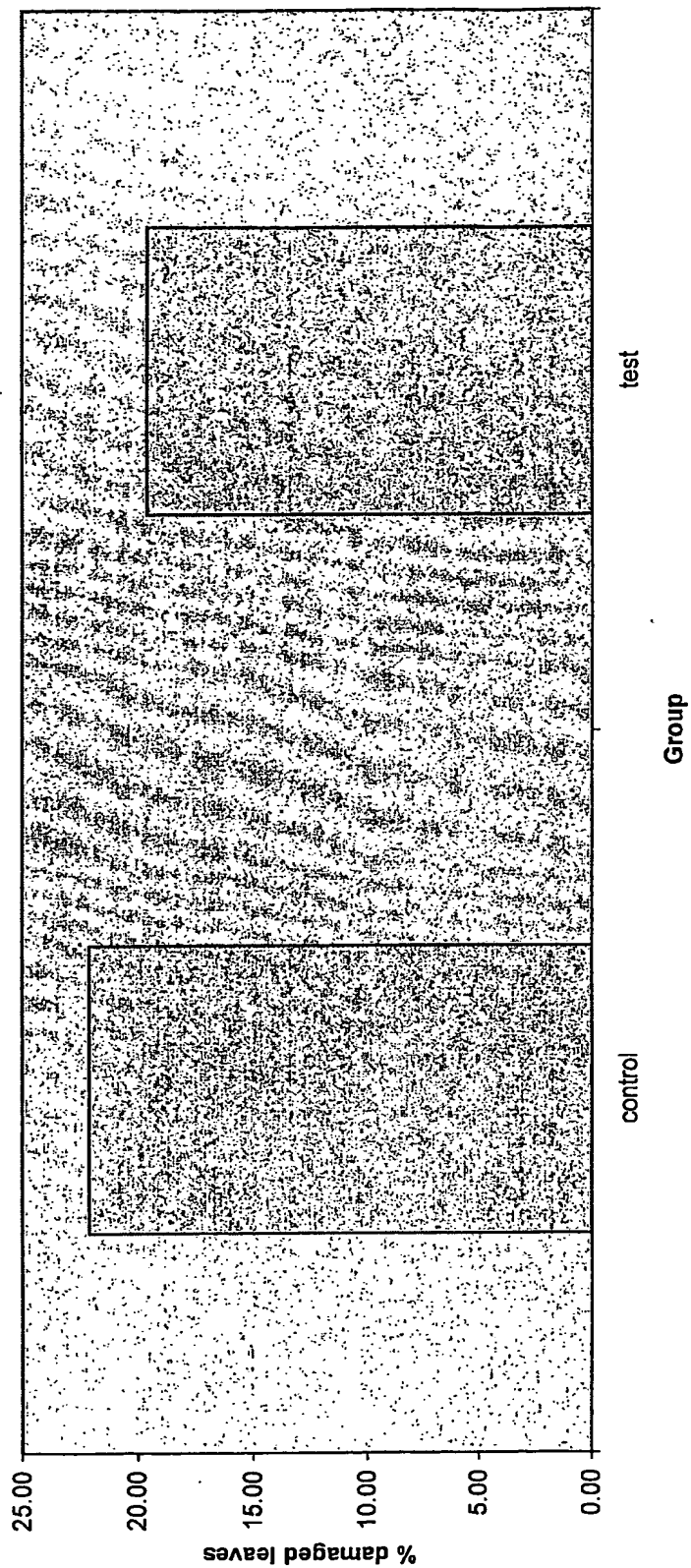


Fig 10

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with acetic acid diluted in water (1/100) $\chi^2 = 19.722$

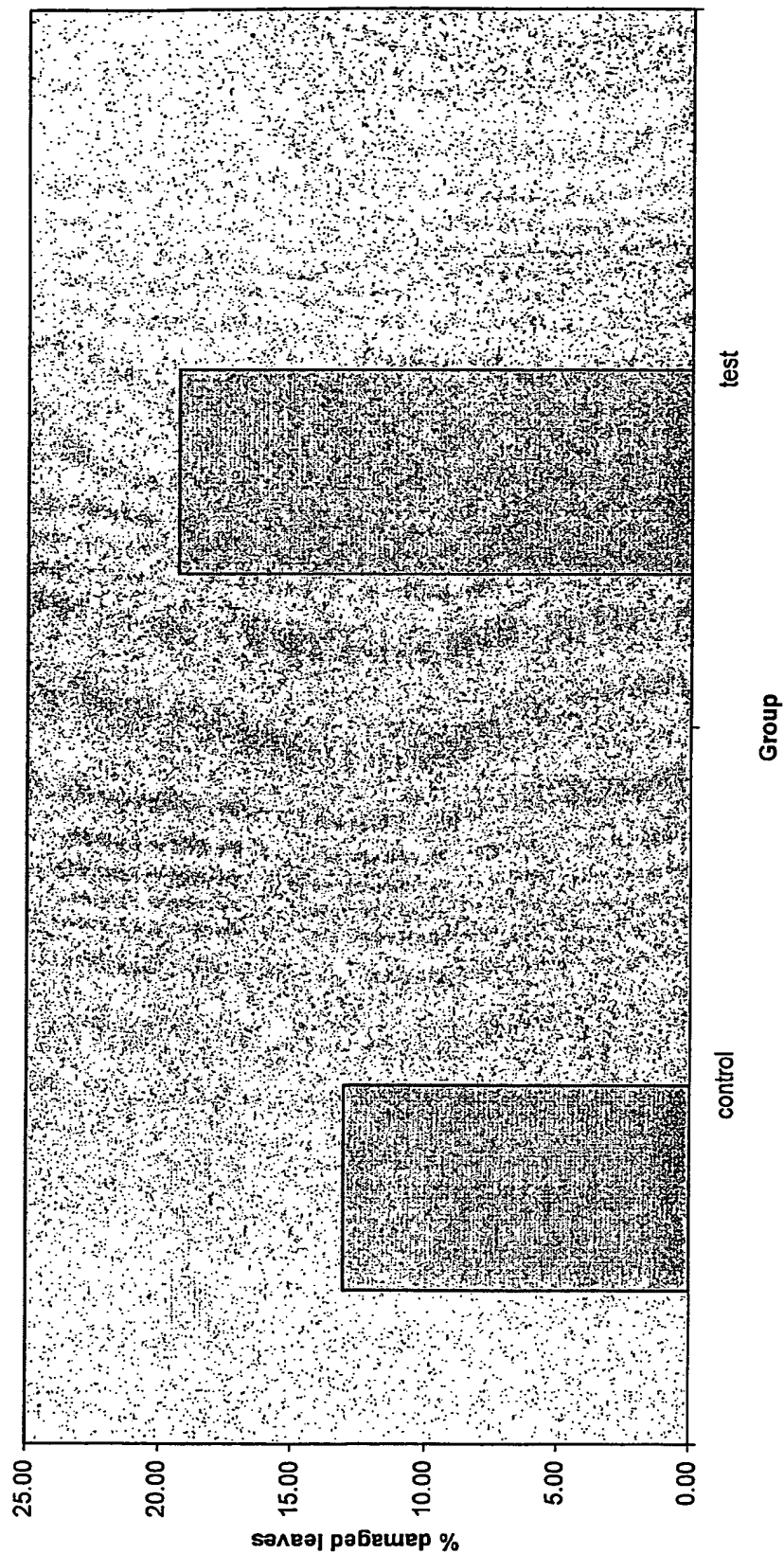


Fig 11

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with acetic acid diluted in water (1/100) χ^2 -sq = 5.601

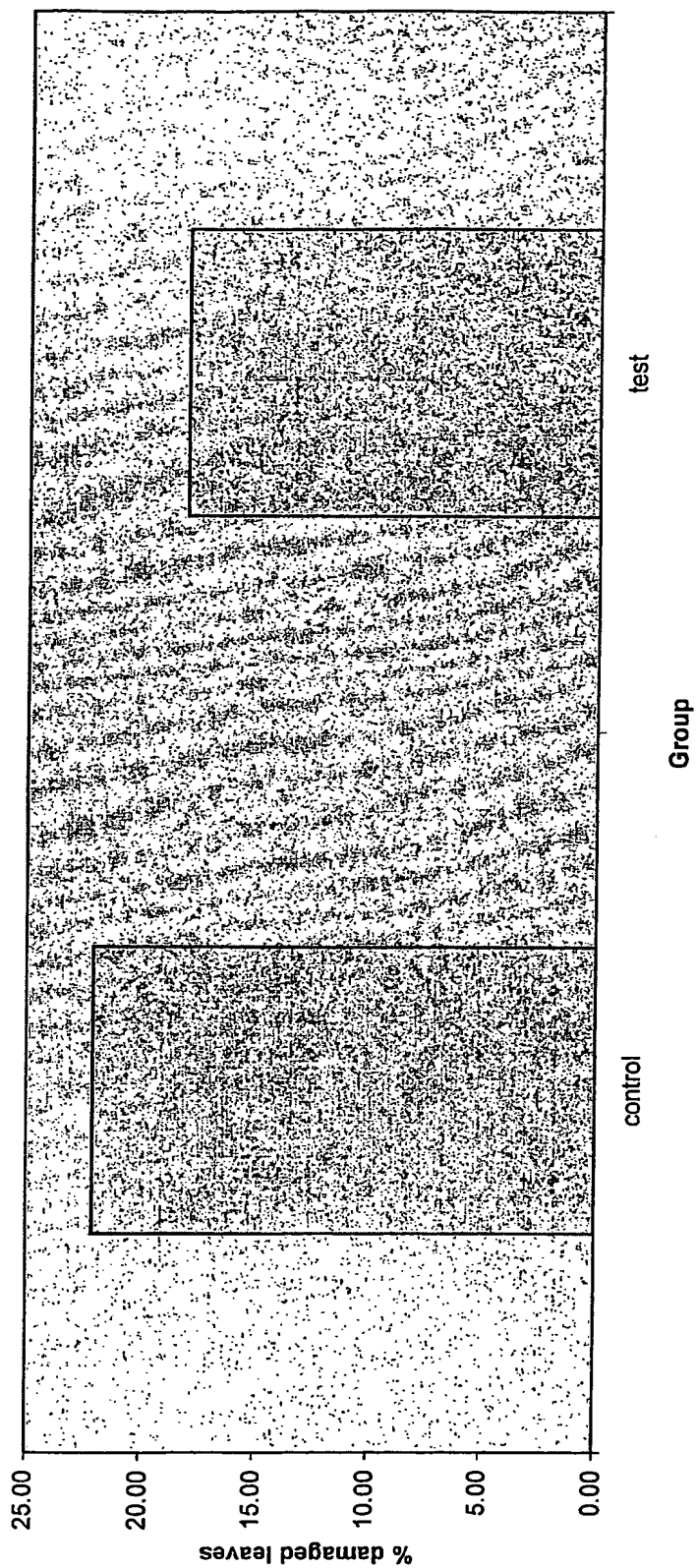


Fig 12

Major Glasshouse studies to show the effects of *D.reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with tiglic acid diluted in water (1/100) χ^2 -sq = 0.703

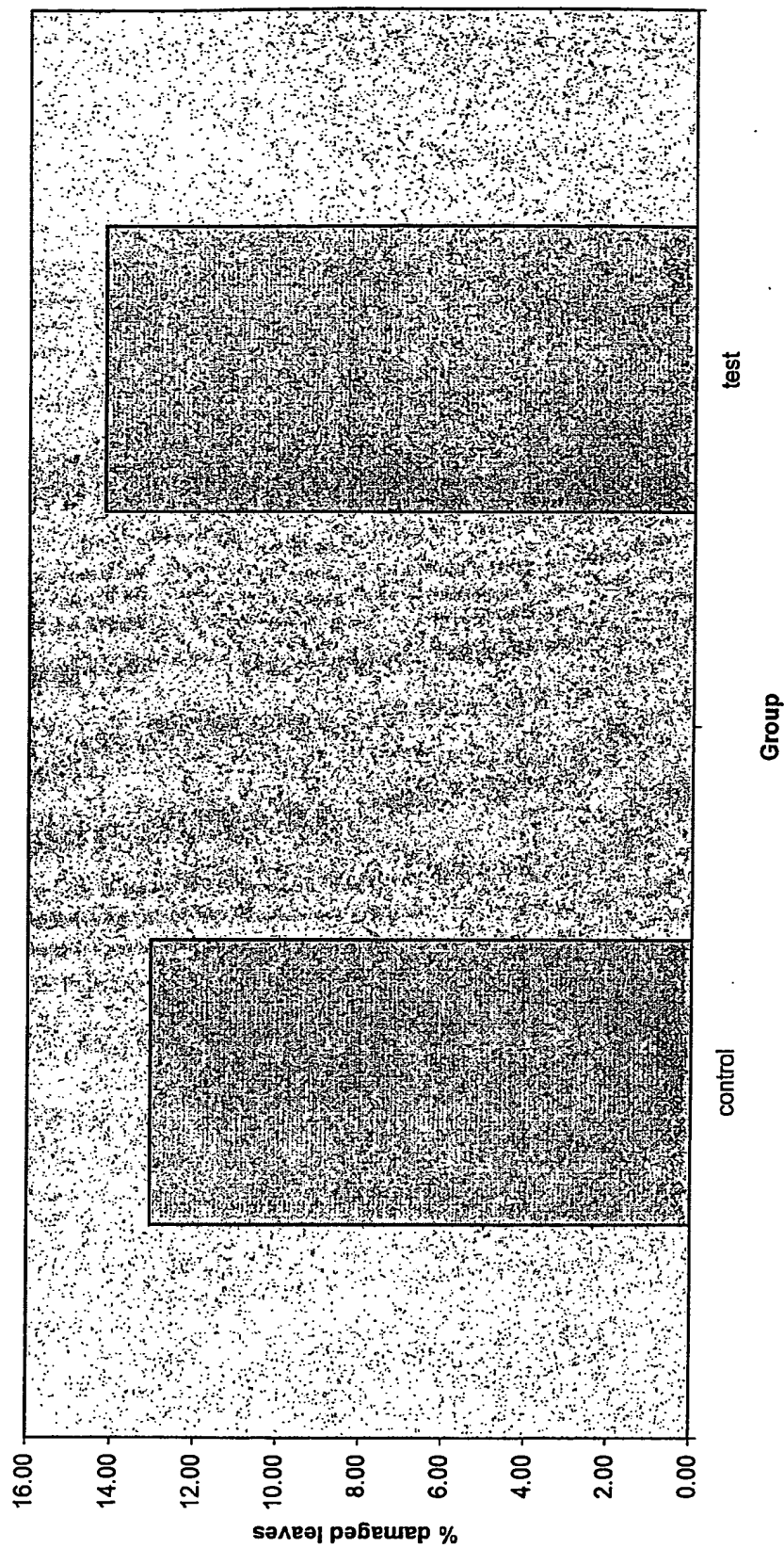


FIG 12

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with tiglic acid diluted in water (1/100) $\chi^2 = 4.085$

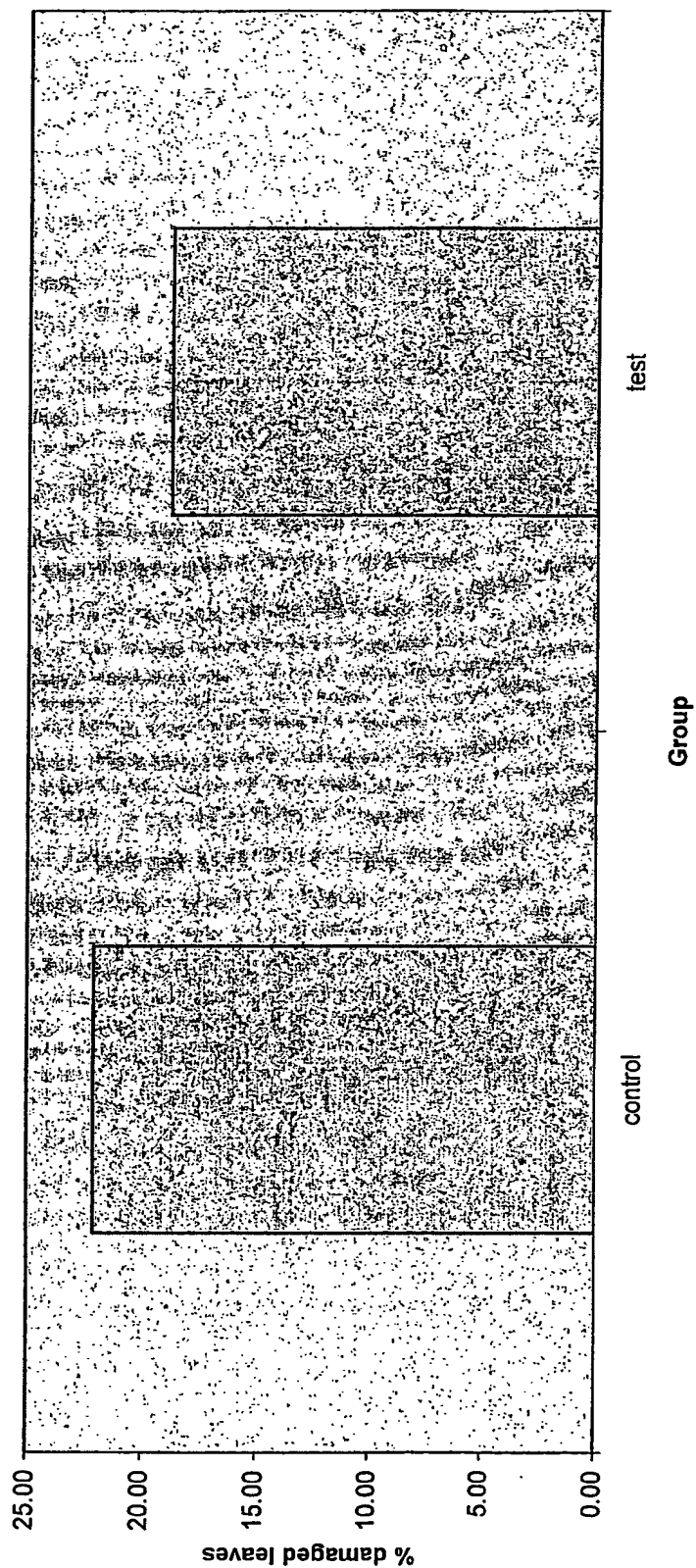


Fig 14

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with beetle formulations of *P. melanarius* (methacrylic and crotonic acid) diluted in water (1/100) $\chi^2 = 20.951$

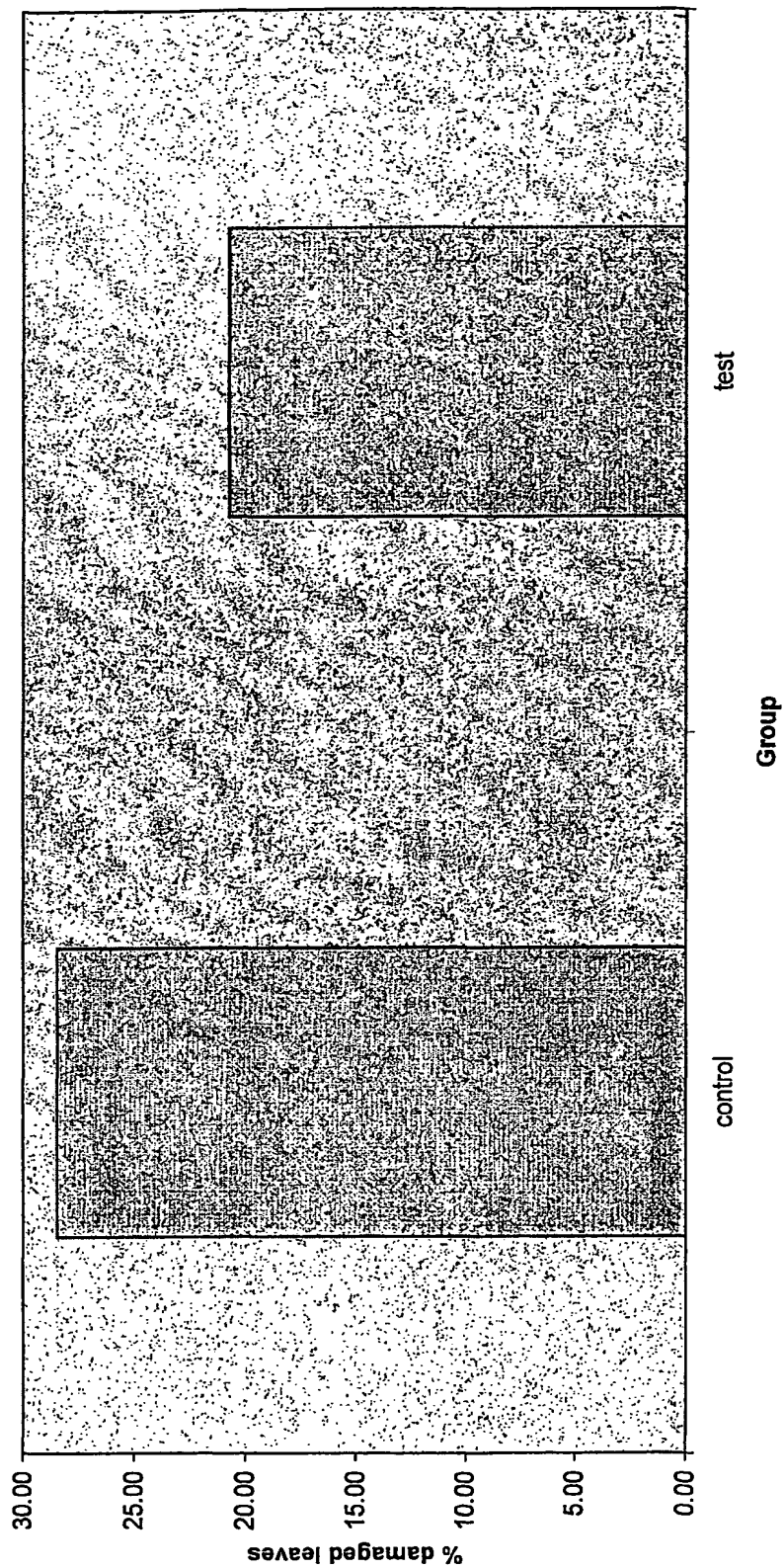
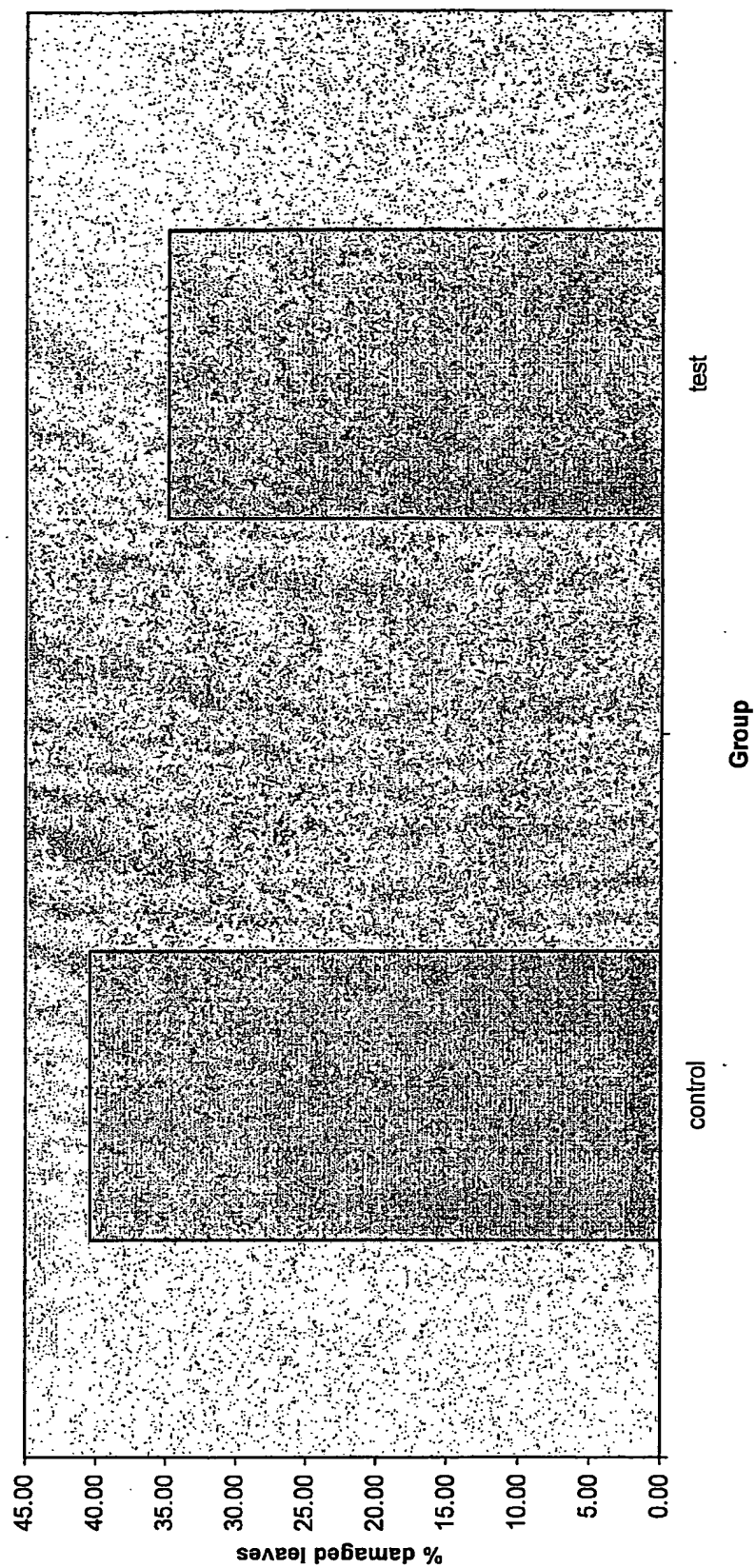


Fig. 15

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with beetle formulations of *P. melanarius* (methacryllic and crotonic acid diluted in water (1/100) χ^2 -sq = 6.753

*Fig 16*

Major Glasshouse studies to show the effects of *D.reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with beetle formulations of *P.cupreus* (acetic and crotonic acid) diluted in water (1/100) χ^2 -sq = 4.473

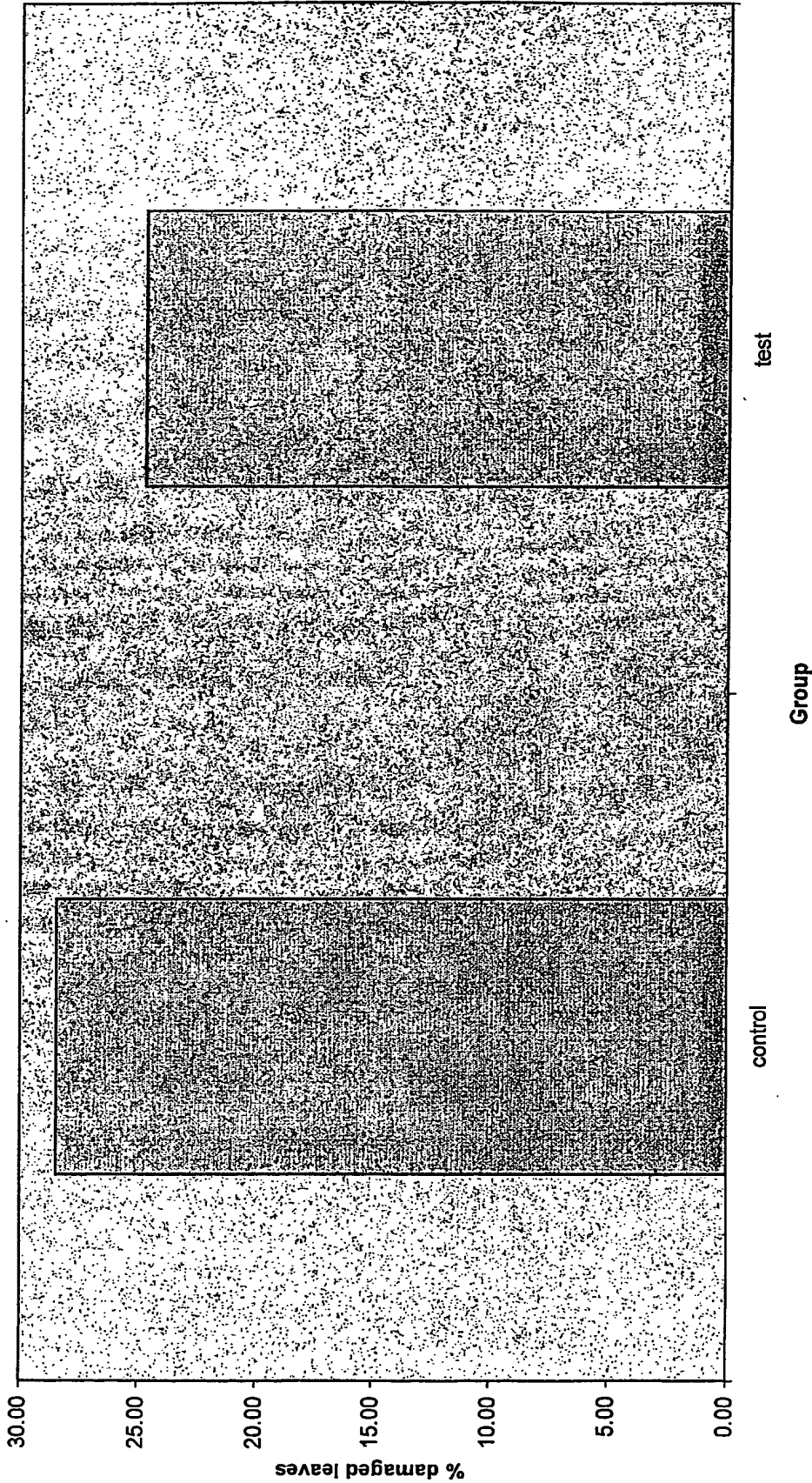


Fig 17

Major Glasshouse studies to show the effects of *D.reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with beetle formulations of *P.cupreus* (acetic and crotonic acid) diluted in water (1/100) $\chi^2 = 13.034$

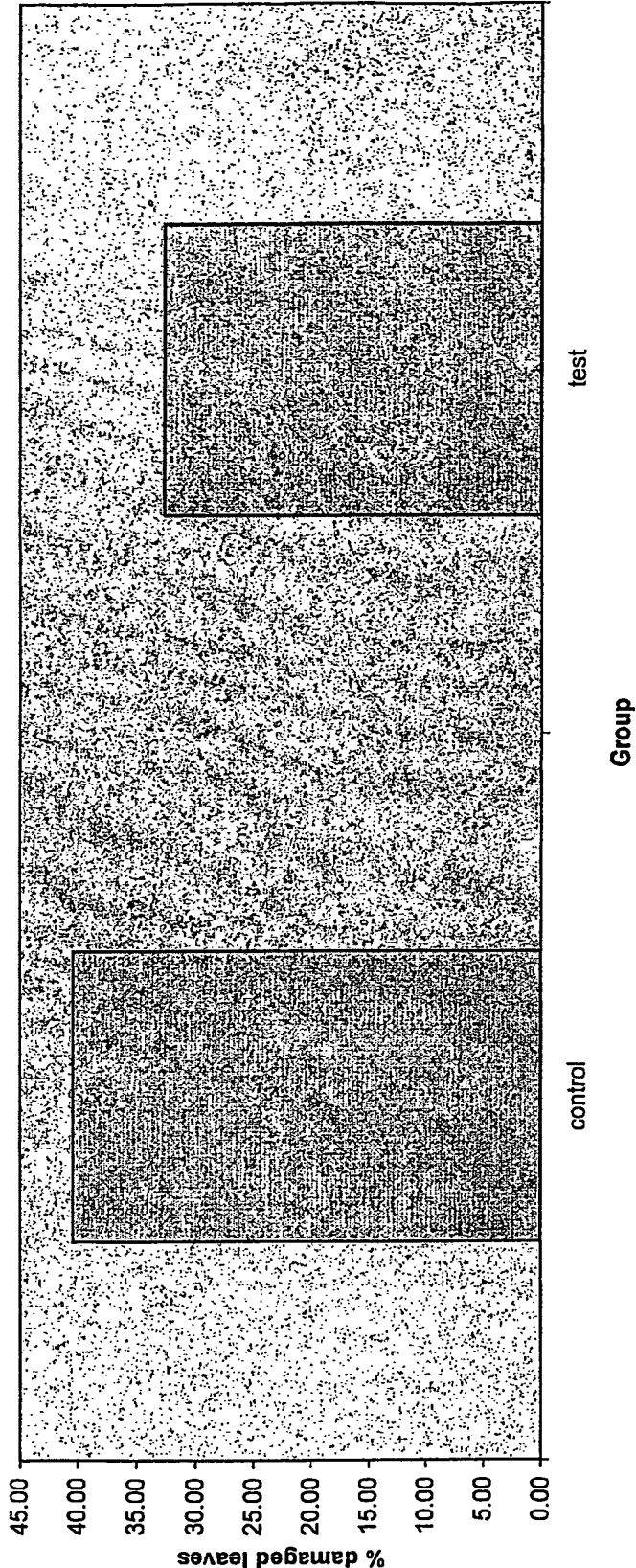


Fig 18

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with beetle formulations of *H. rufipes* (formic acid) diluted in water (1/100) chi-sq = 89.743

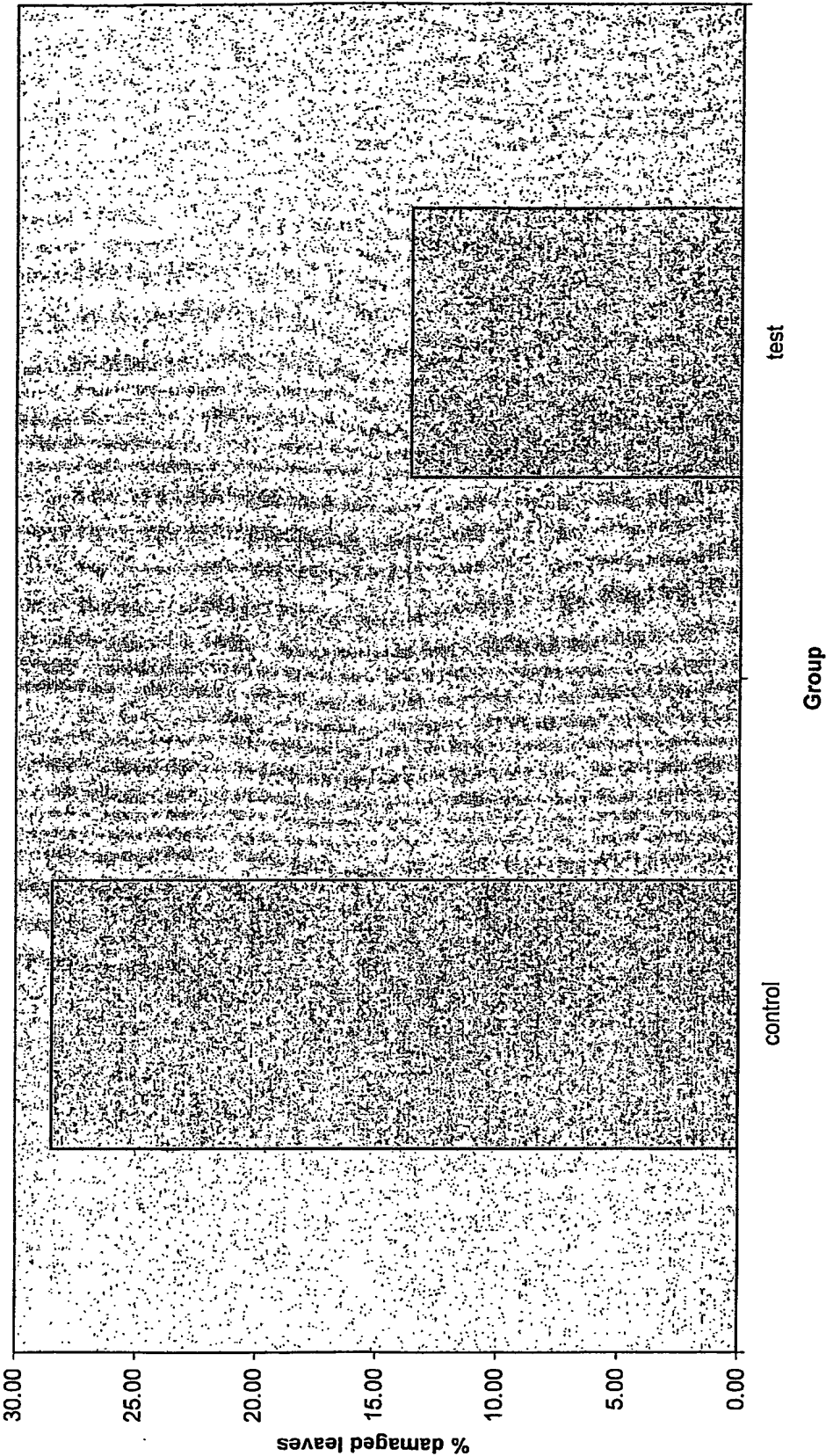
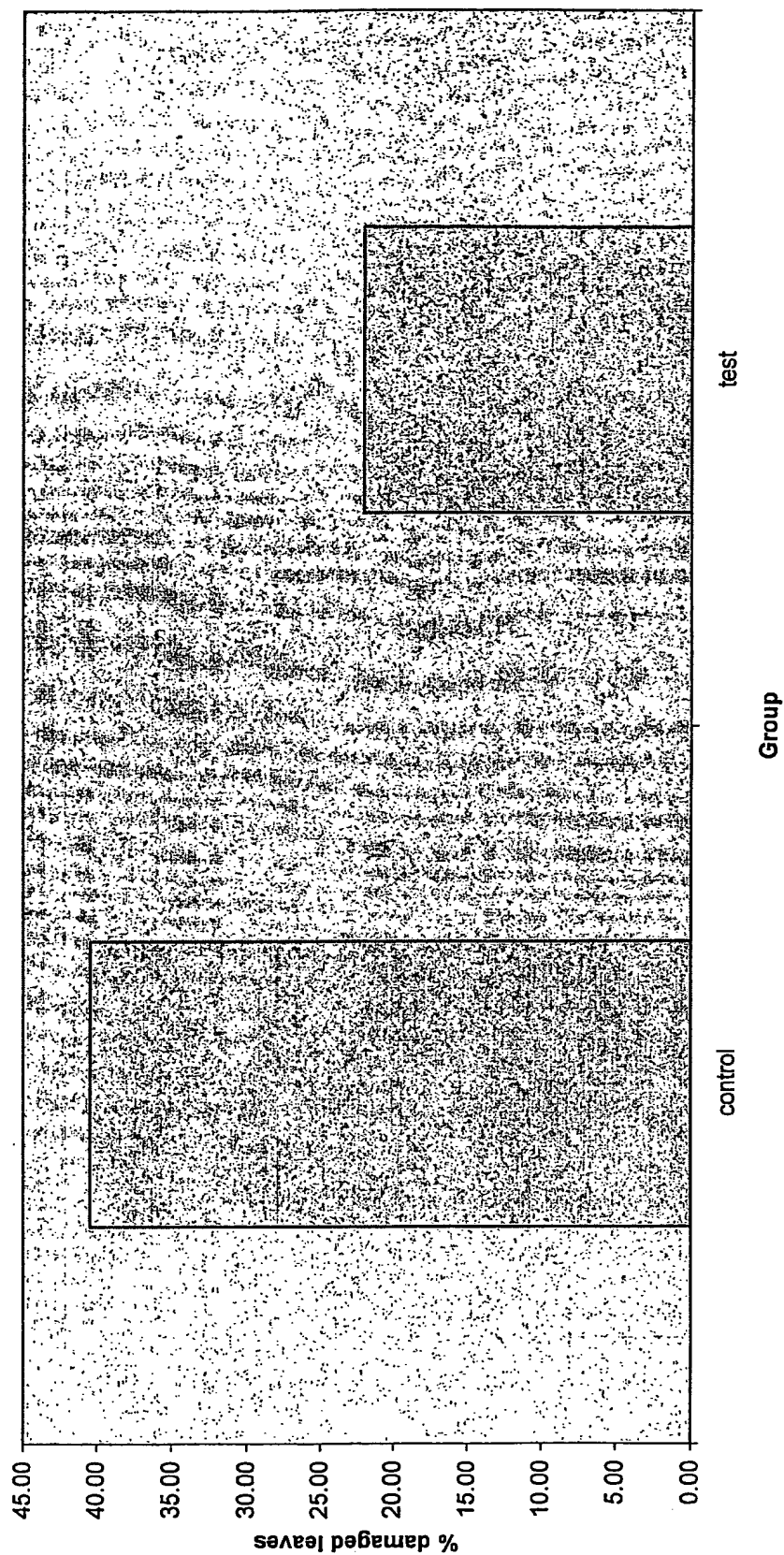


Fig 19

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with beetle formulations of *H. rufipes* (formic acid) diluted in water (1/100) chi-sq = 79.168



F14 20

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 2 days on pea plants grown (6") in height and applied with beetle formulations of *P. madidus* (methacrylic and tiglic acid) diluted in water (1/100) χ^2 -sq = 90.665

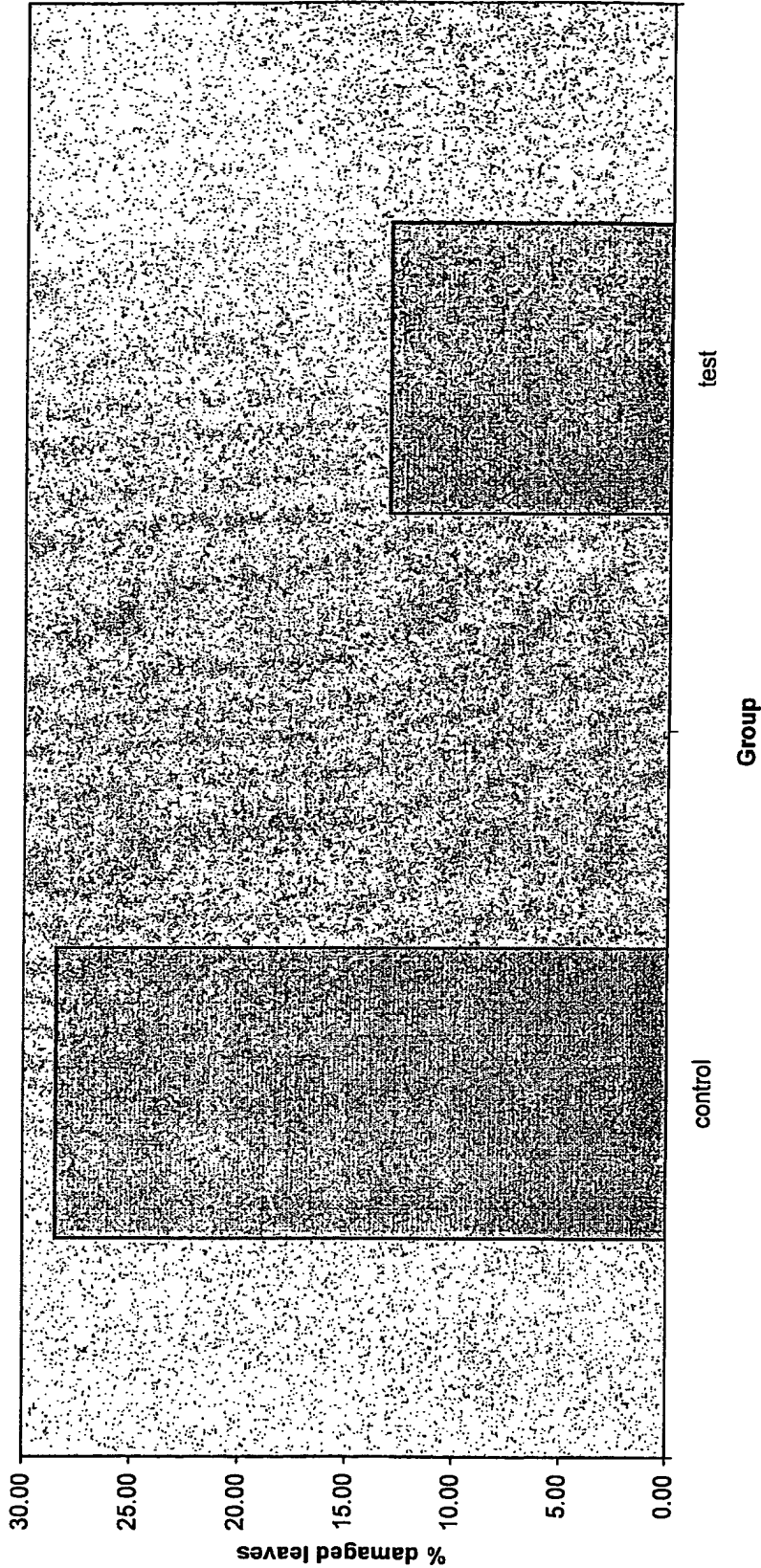


FIG 21

Major Glasshouse studies to show the effects of *D. reticulatum* slugs after a period of 5 days on pea plants grown (6") in height and applied with beetle formulations of *P. madidus* (methacrylic and tiglic acid) diluted in water (1/100)

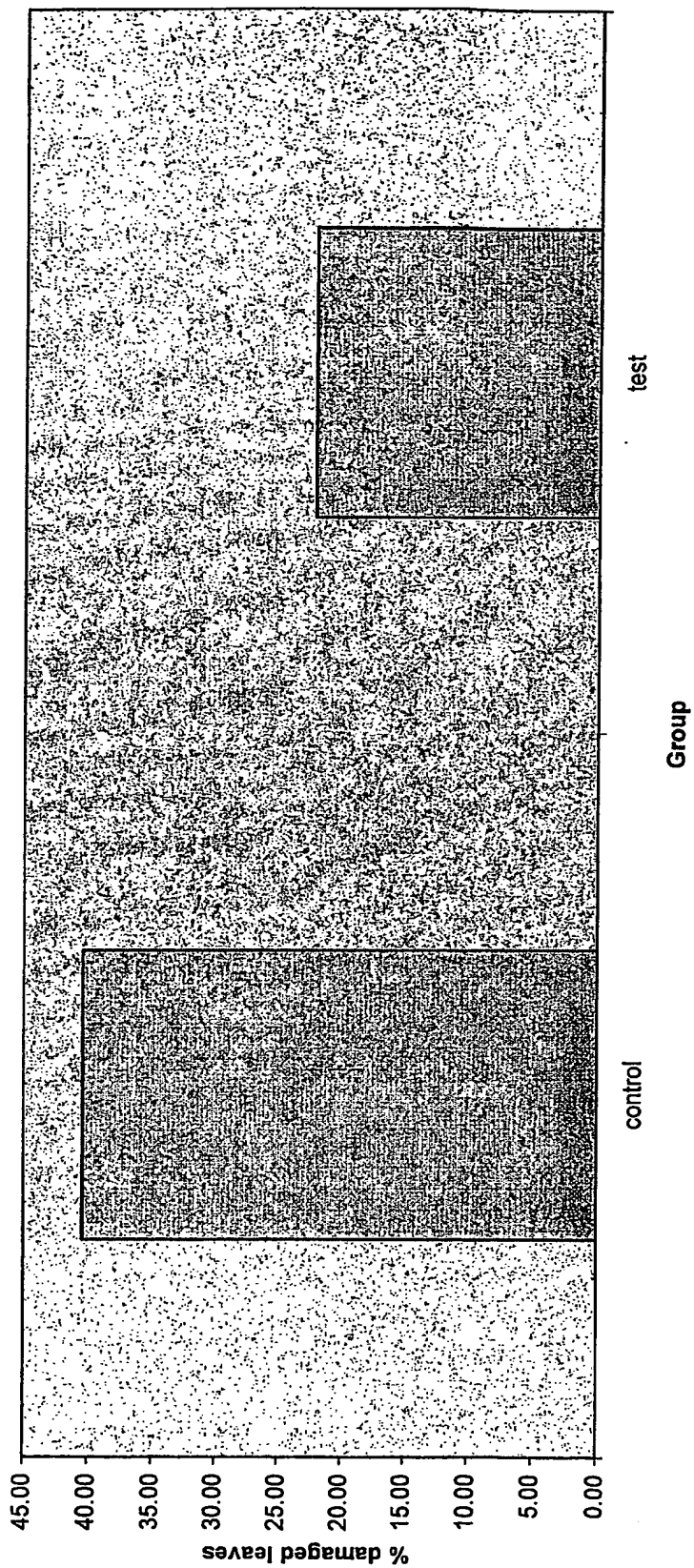


Fig 22

To stop slugs from climbing onto growing pea plants

Glasshouse studies on day 1 to show the effects of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) χ^2 -sq = 27.931

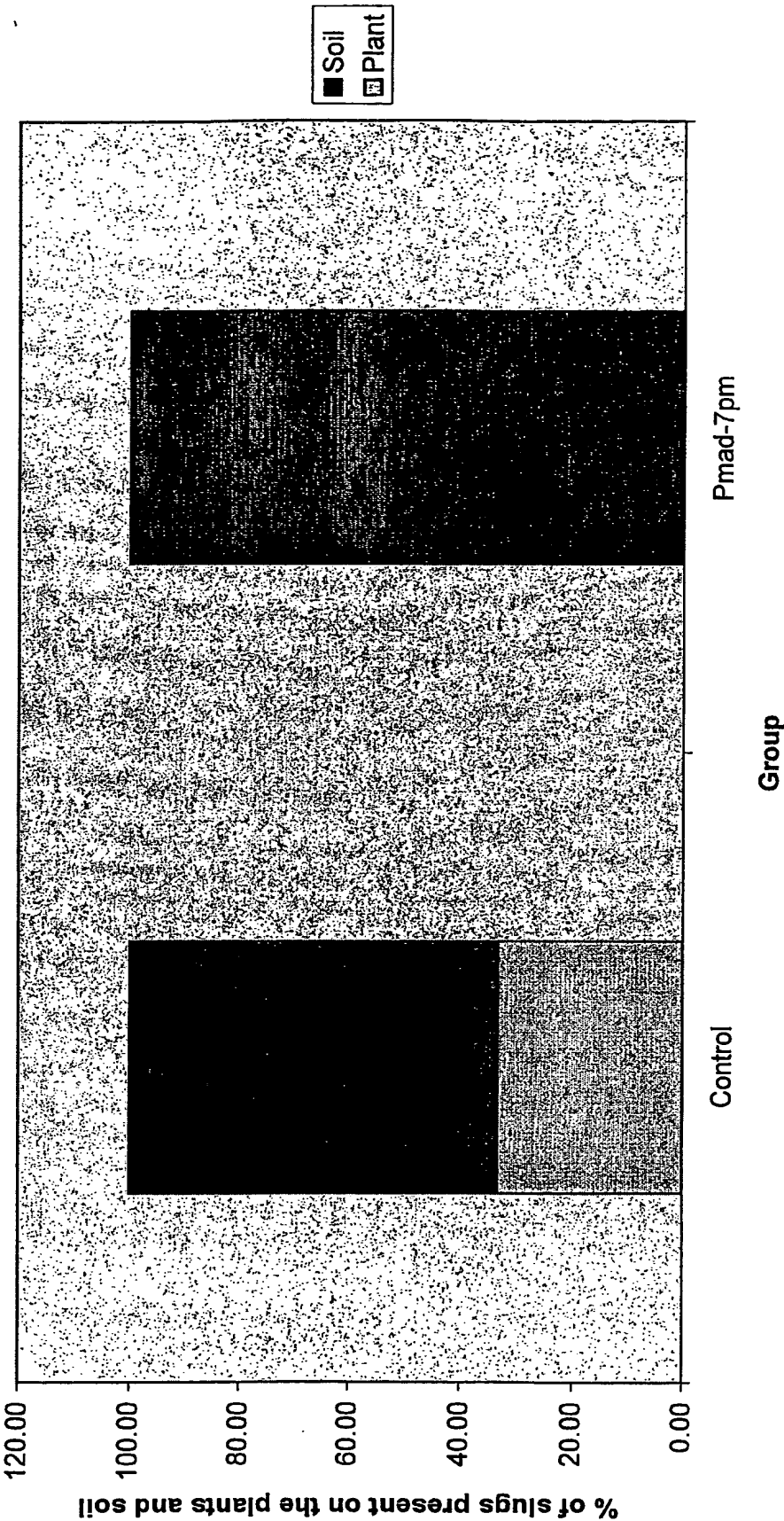


Fig 23

Glasshouse studies on day 1 to show the effects of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid) $\chi^2 = 10.159$

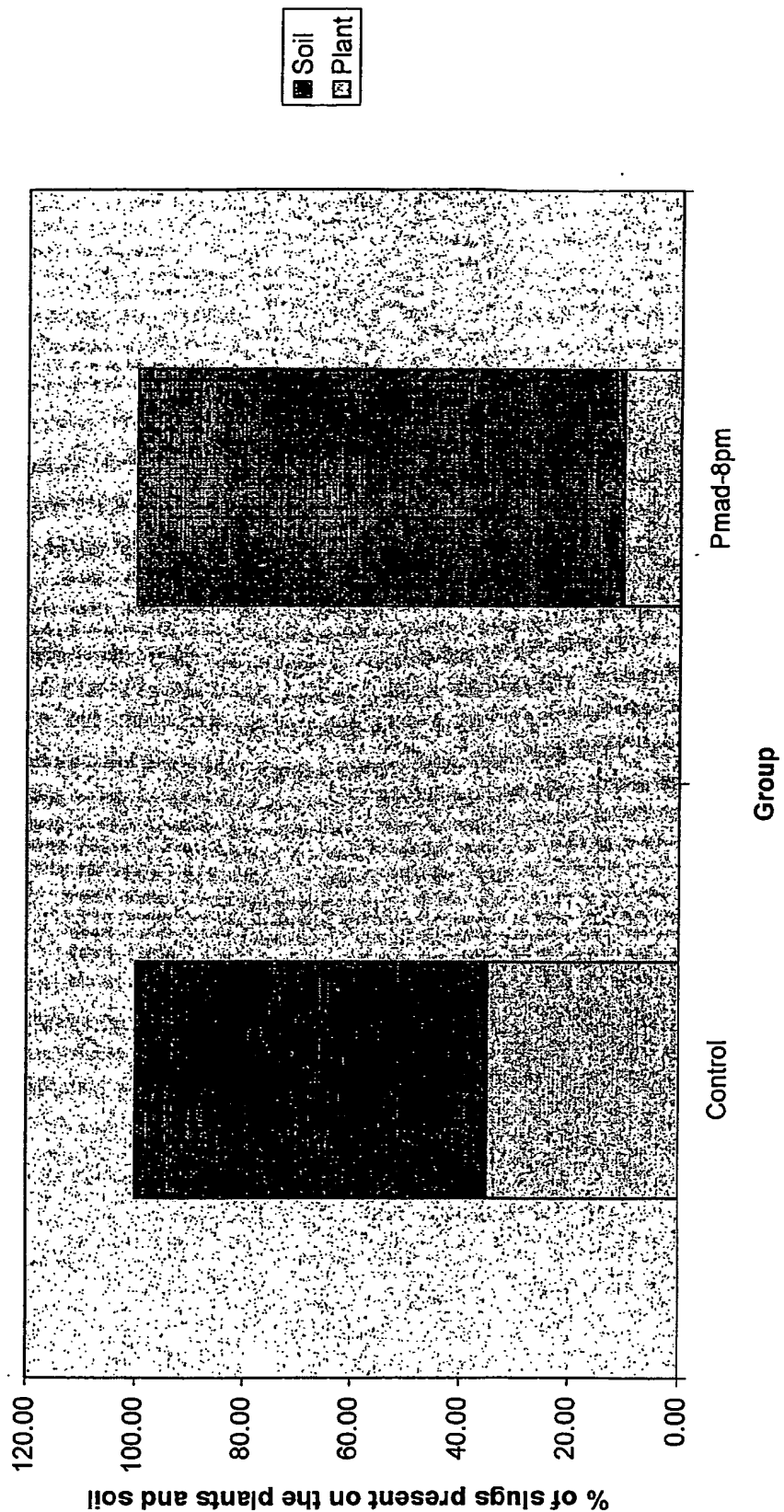


FIG 24

Glasshouse studies on day 1 to show the effects of *D.reticulatum* slugs after a period of 3 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.565$

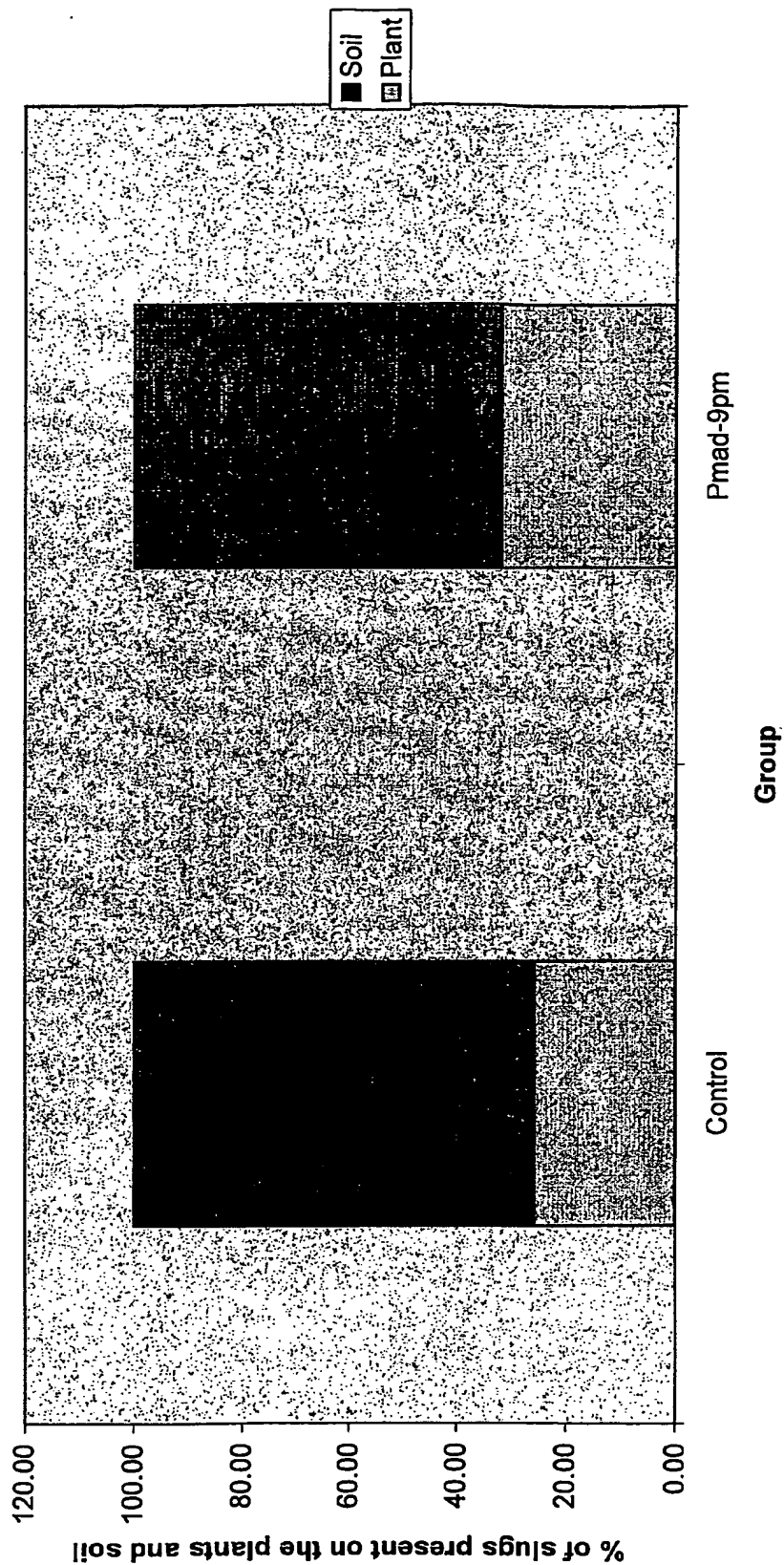
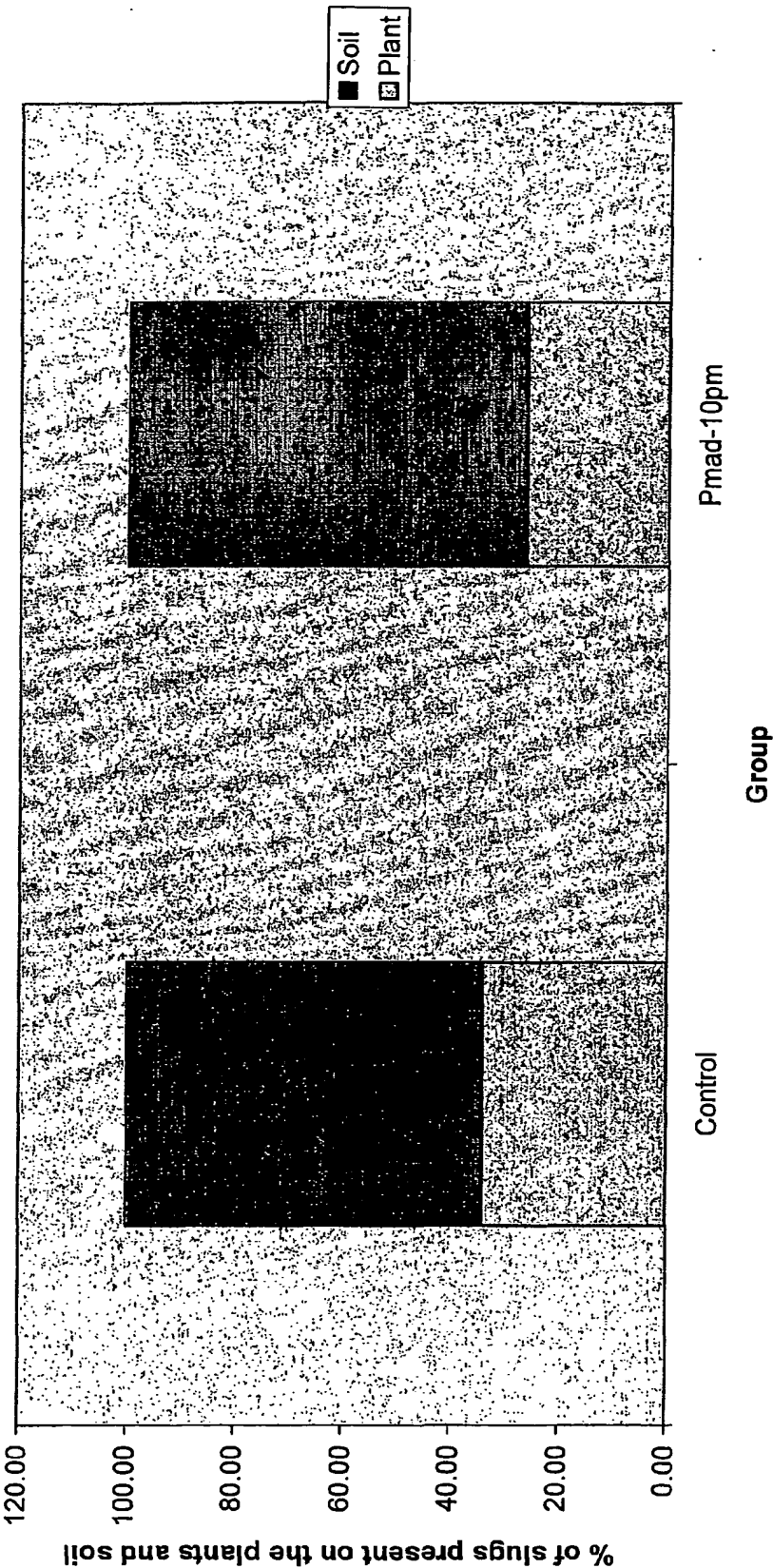


FIG 25

Glasshouse studies on day 1 to show the effects of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.825$



F/6 26

Glasshouse studies on day 1 to show the effects of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with methacrylic acid χ^2 -sq = 7.424

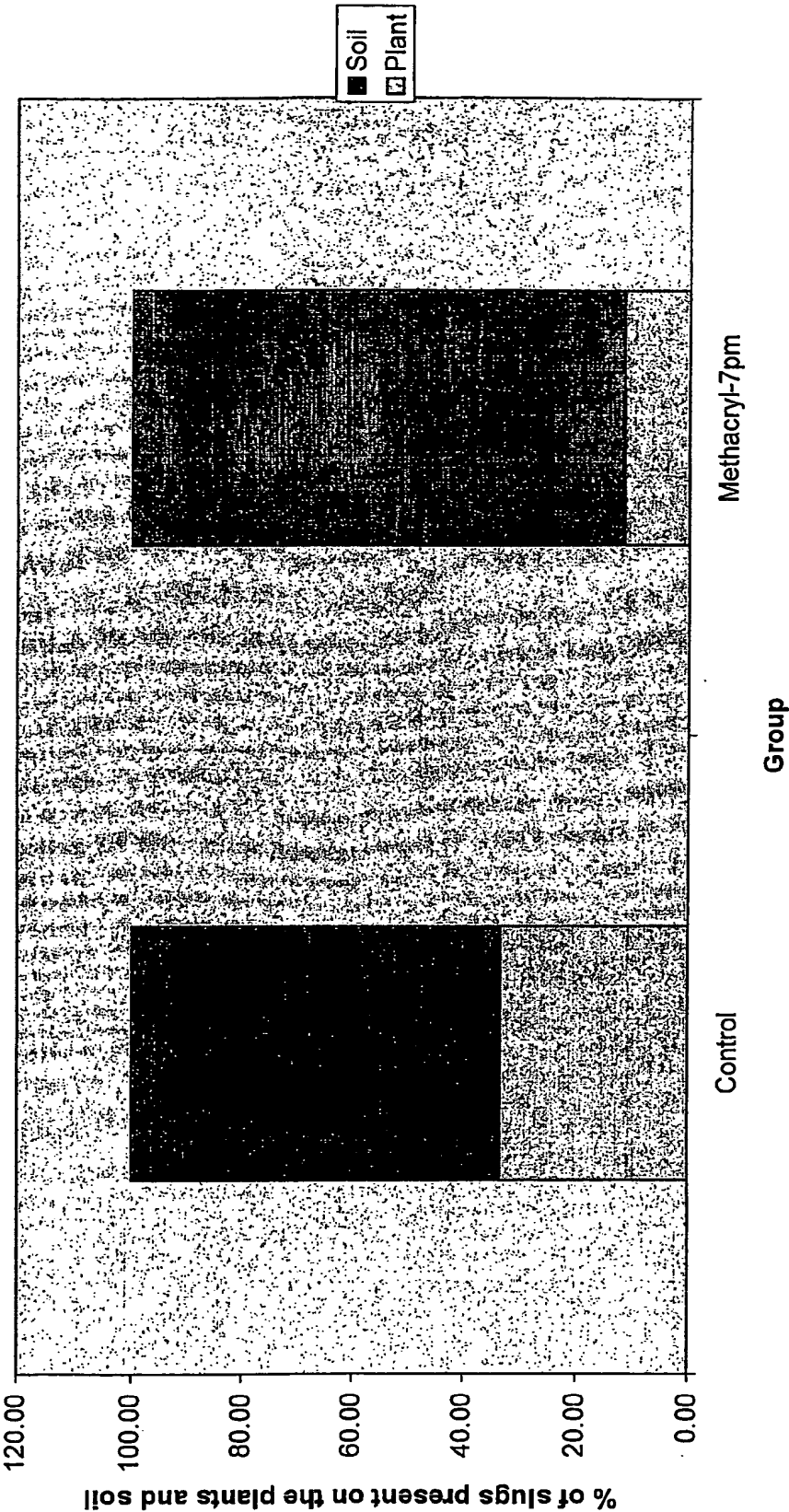


Fig 27

Glasshouse studies on day 1 to show the effects of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with methacrylic acid $\chi^2 = 1.467$

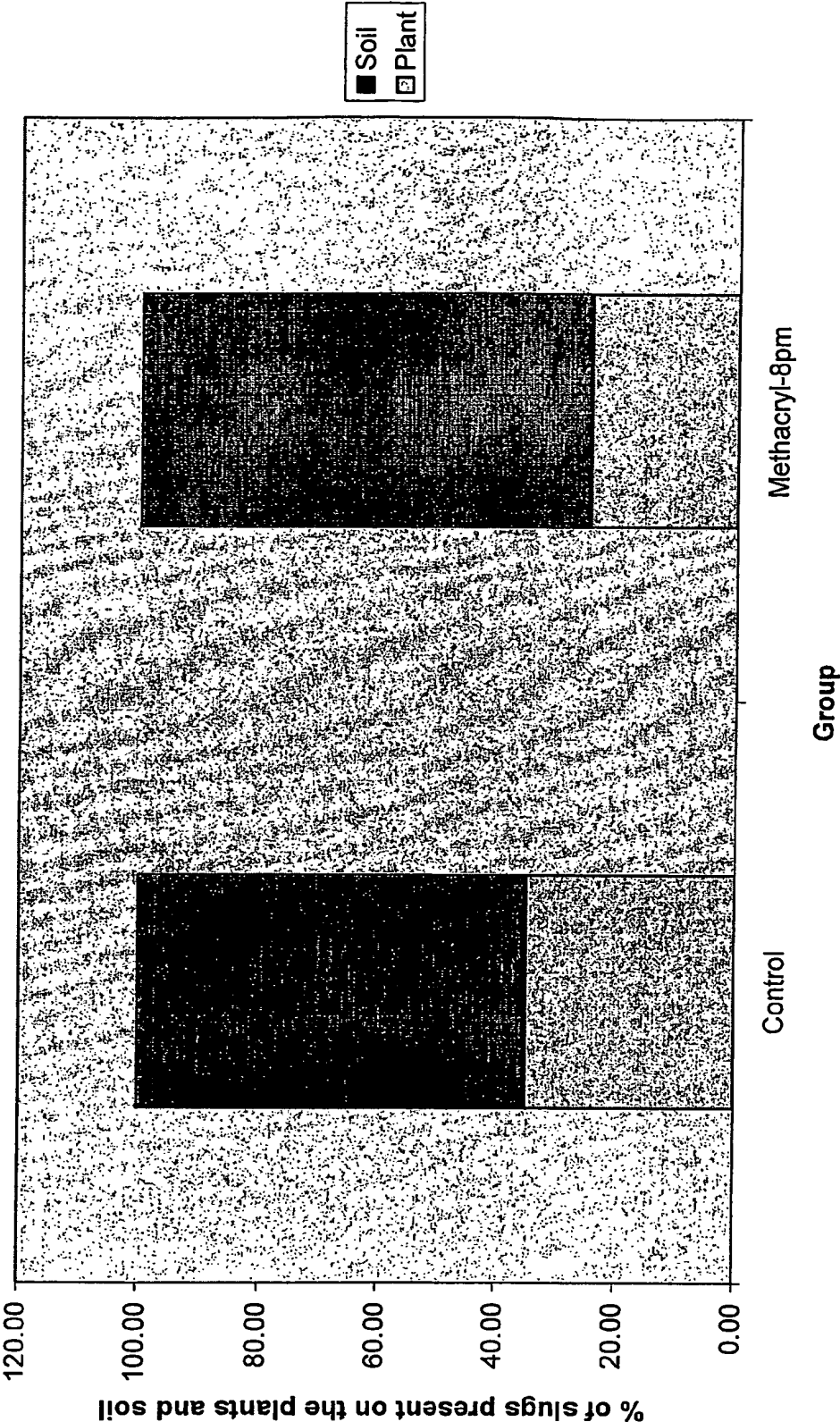


Fig 28

Glasshouse studies on day 1 to show the effects of *D. reticulatum* slugs after a period of 3 hours on pea plants applied with methacrylic acid $\chi^2 = 2.328$

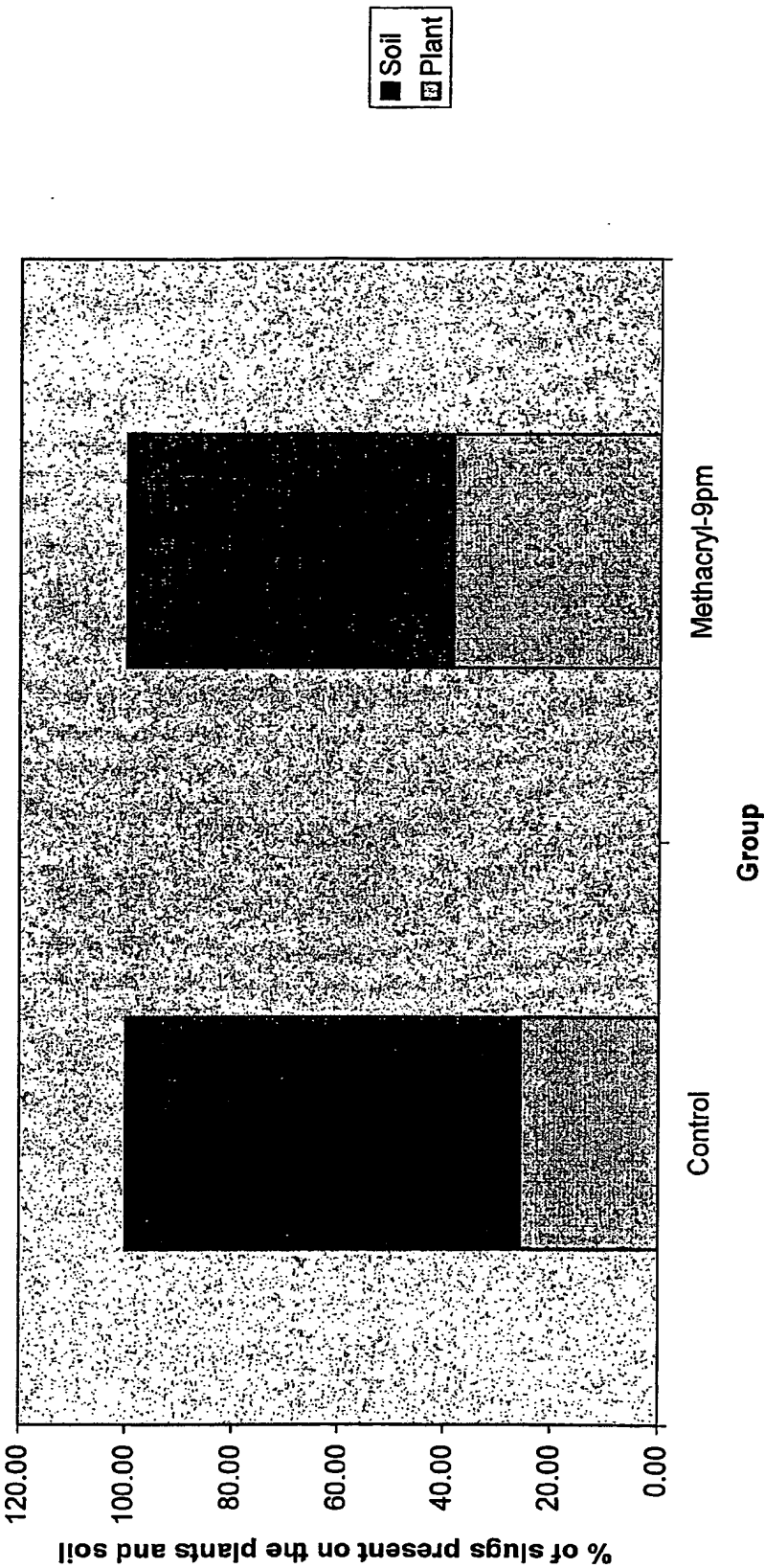


Fig 29

Glasshouse studies on day 1 to show the effects of *D. reticulatum* slugs after a period of 4 hours on pea plants applied with methacrylic acid $\chi^2 = 0.059$

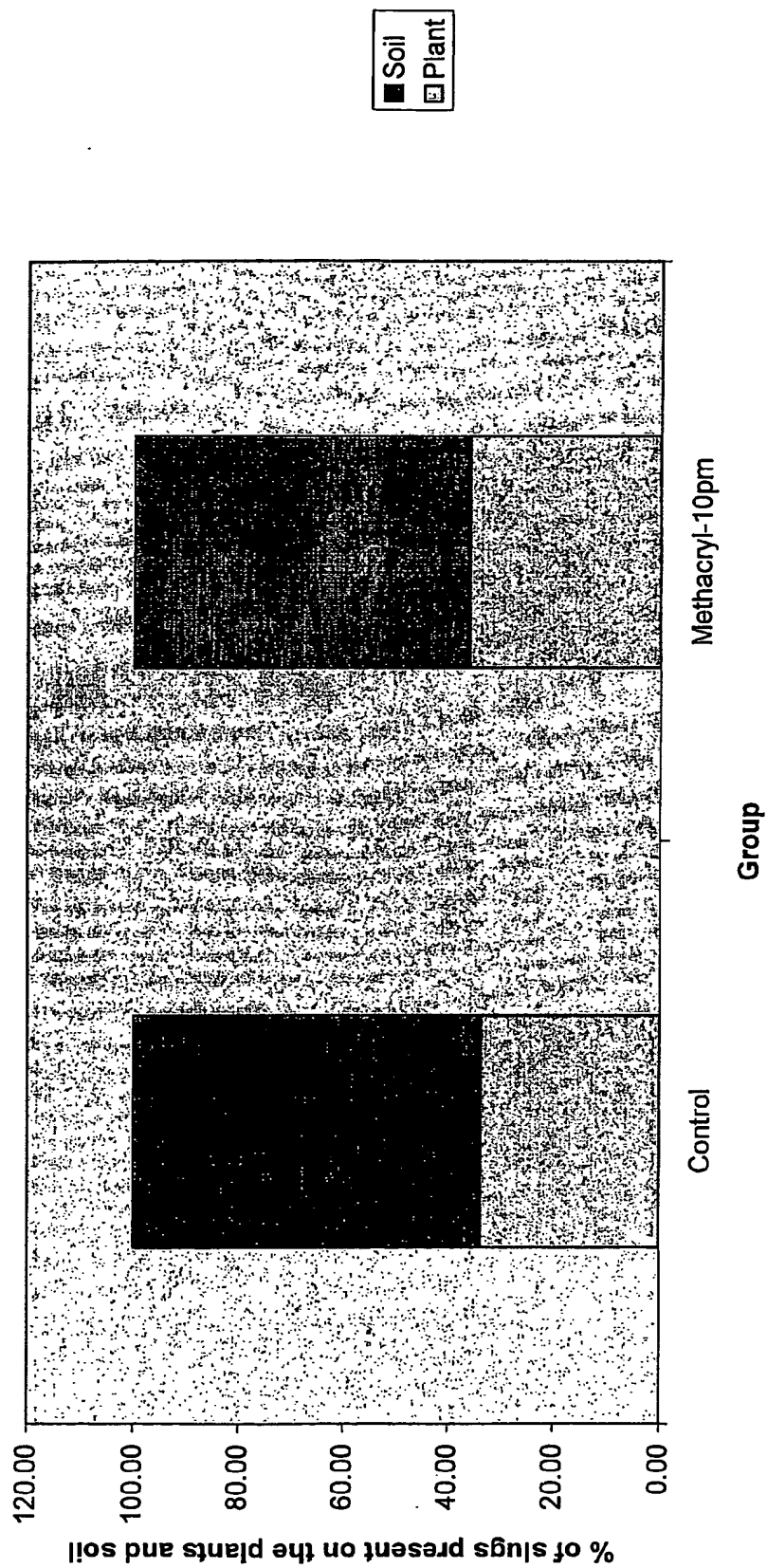


Fig 30

Glasshouse studies on day 2 to show the effects of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P.madidus*(mehtacrylic and tiglic acid) $\chi^2 = 16.259$

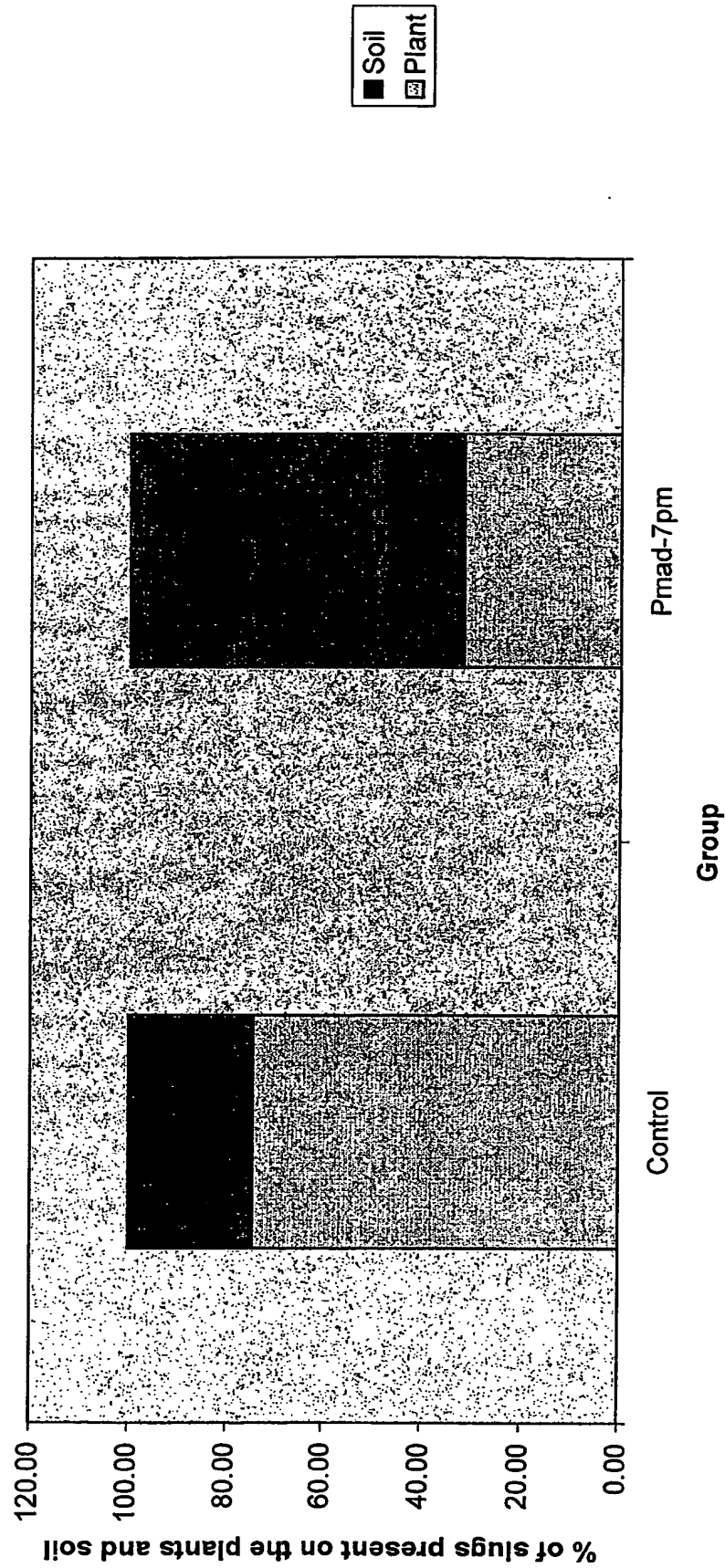


FIG 31

Glasshouse studies on day 2 to show the effects of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 7.722$

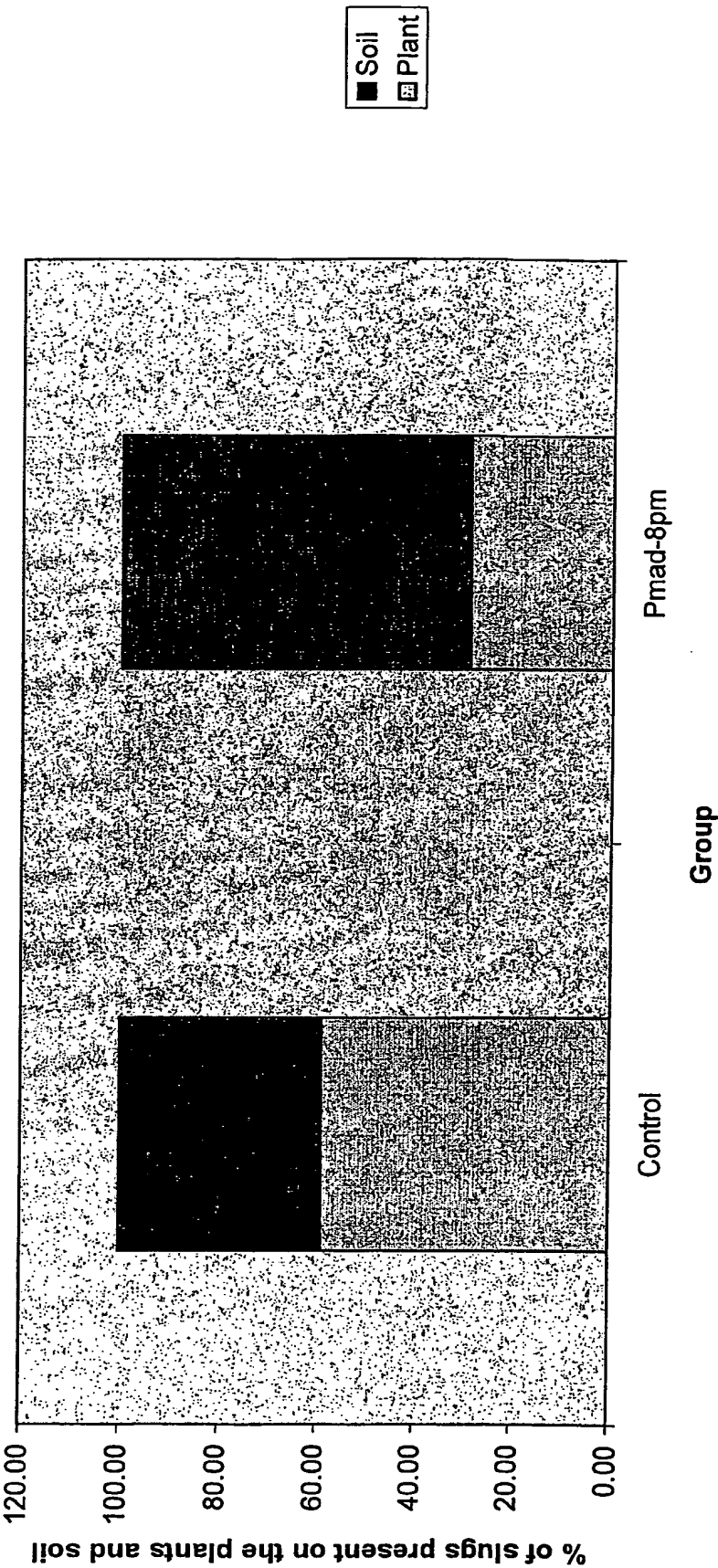


Fig. 32

Glasshouse studies on day 2 to show the effects of *D. reticulatum* slugs after a period of 1 hour on pea plants applied with methacrylic acid $\chi^2 = 13.450$

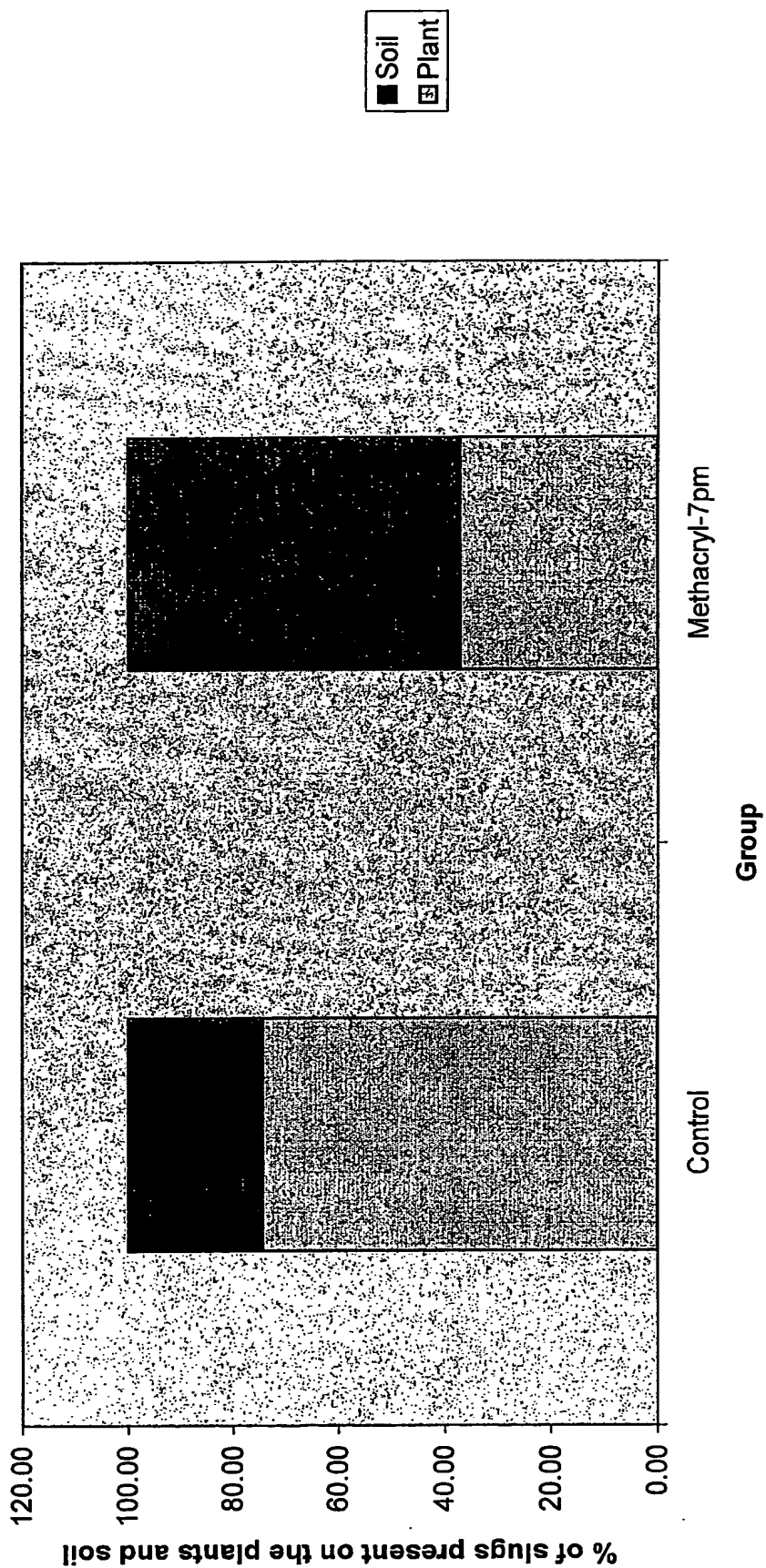


FIG 33

Glasshouse studies on day 2 to show the effects of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with methacryllic acid $\chi^2 = 2.579$

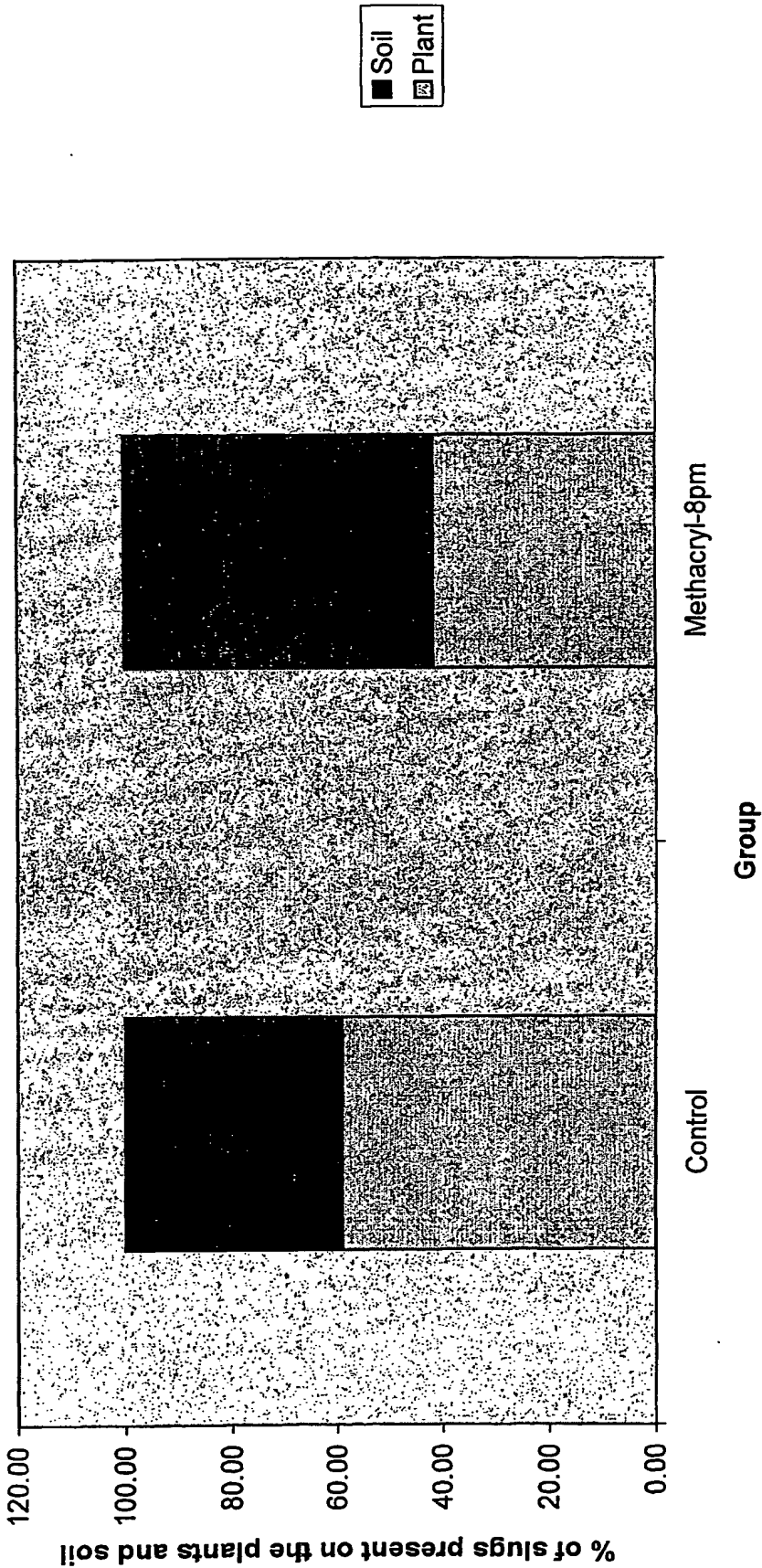


FIG 34

Glasshouse studies on day 5 to show the effects of *D. reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.355$

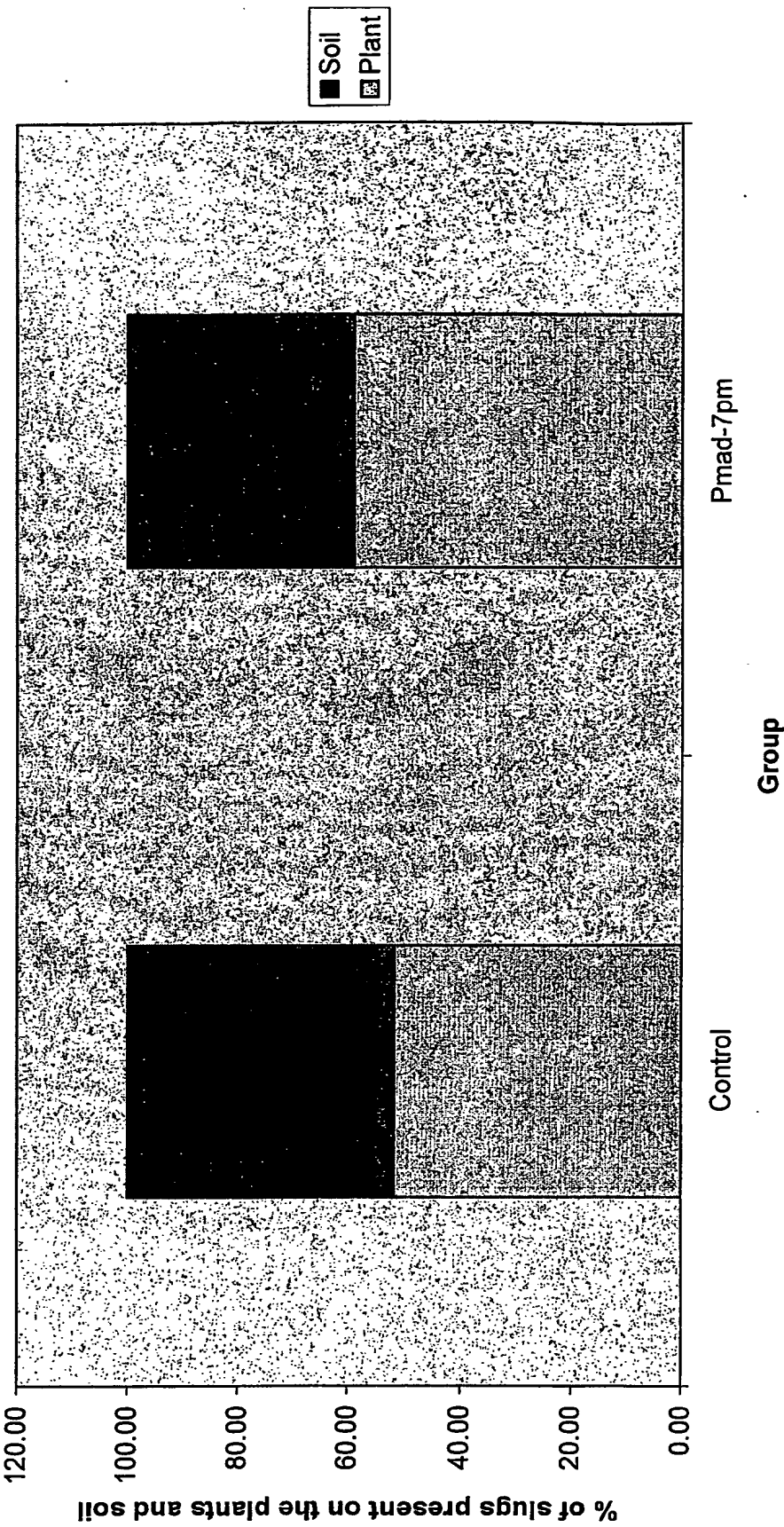


Fig 35

Glasshouse studies on day 5 to show the effects of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.003$

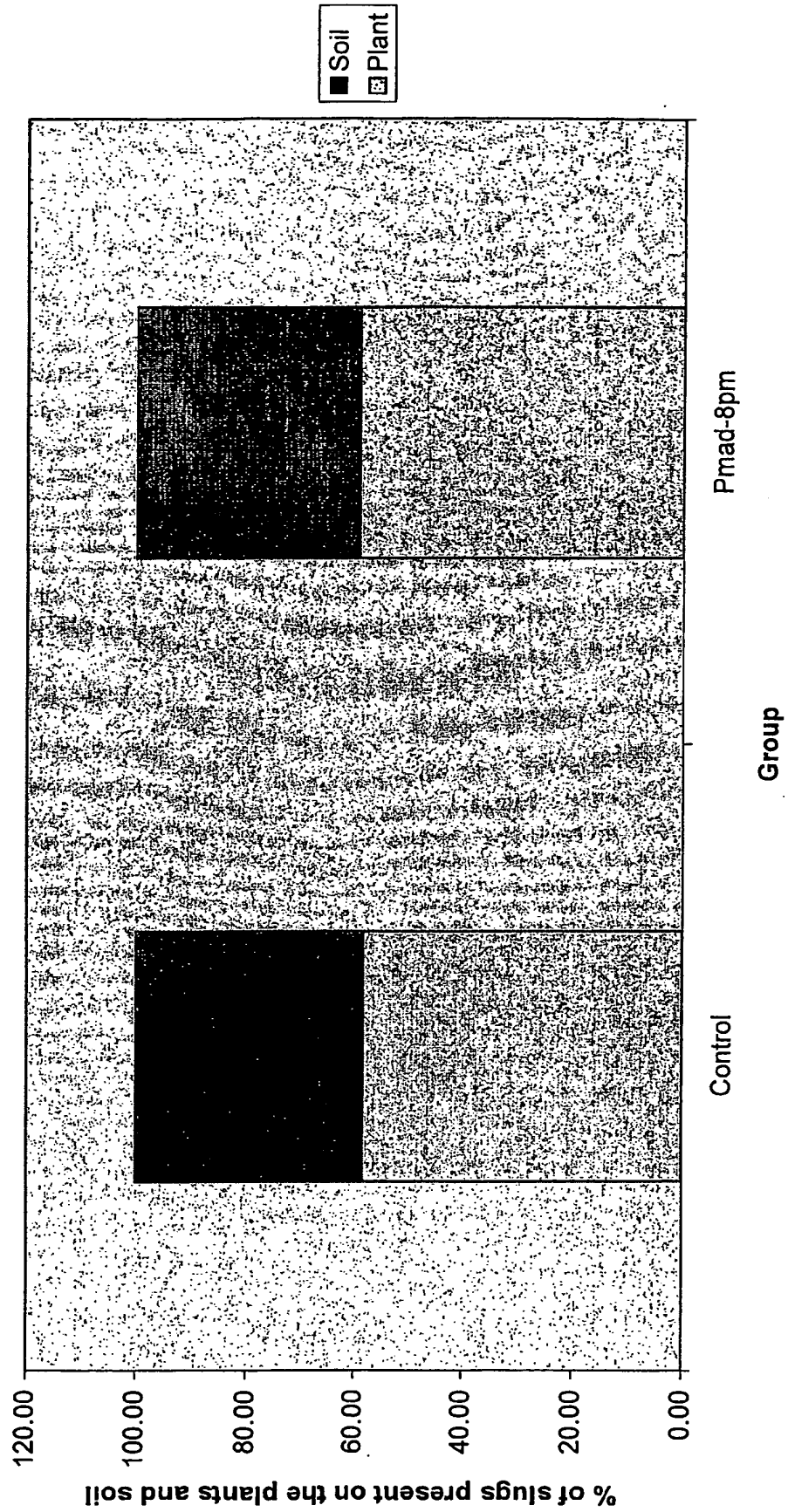


FIG 36

Glasshouse studies on day 5 to show the effects of *D.reticulatum* slugs after a period of 3 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.483$

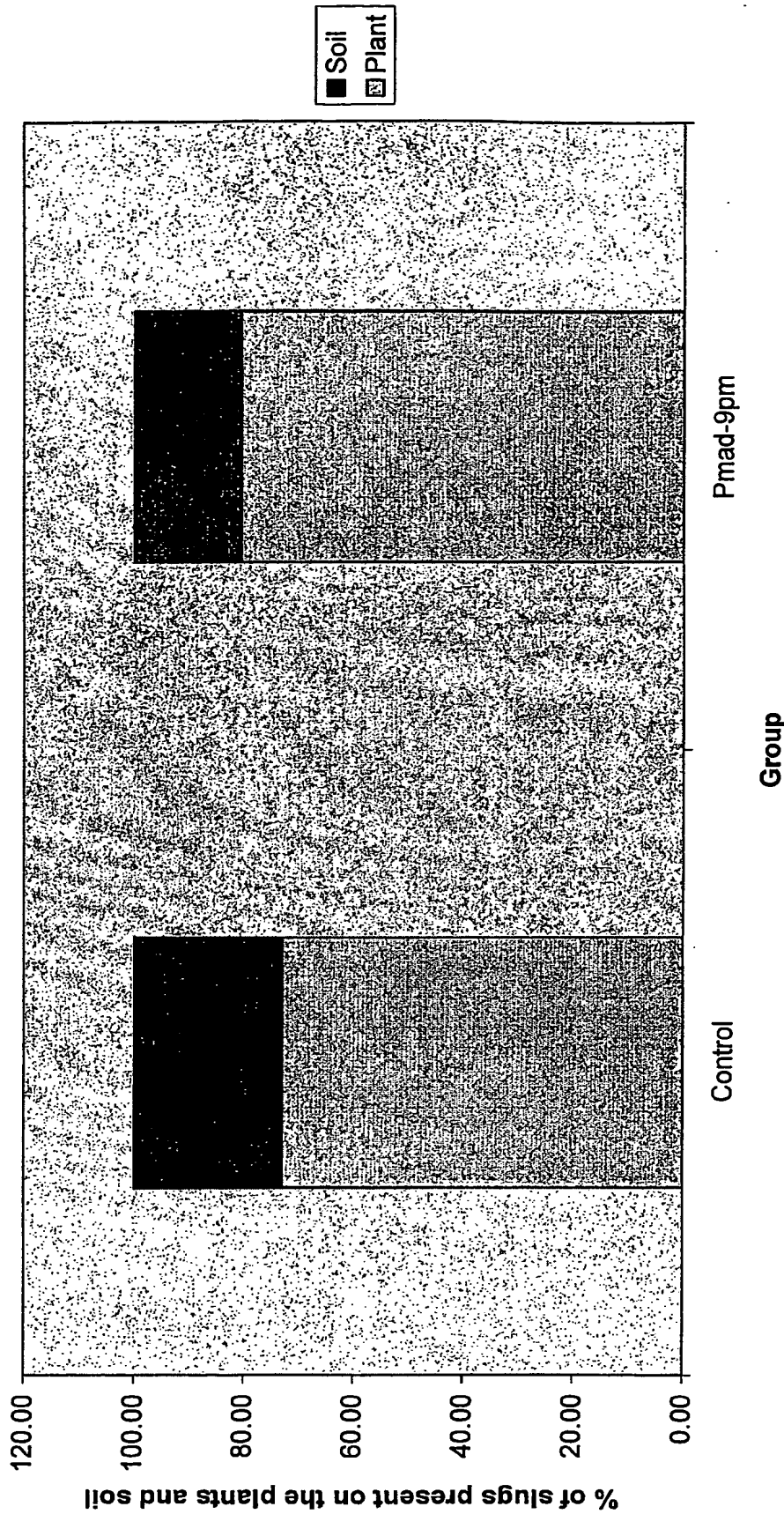
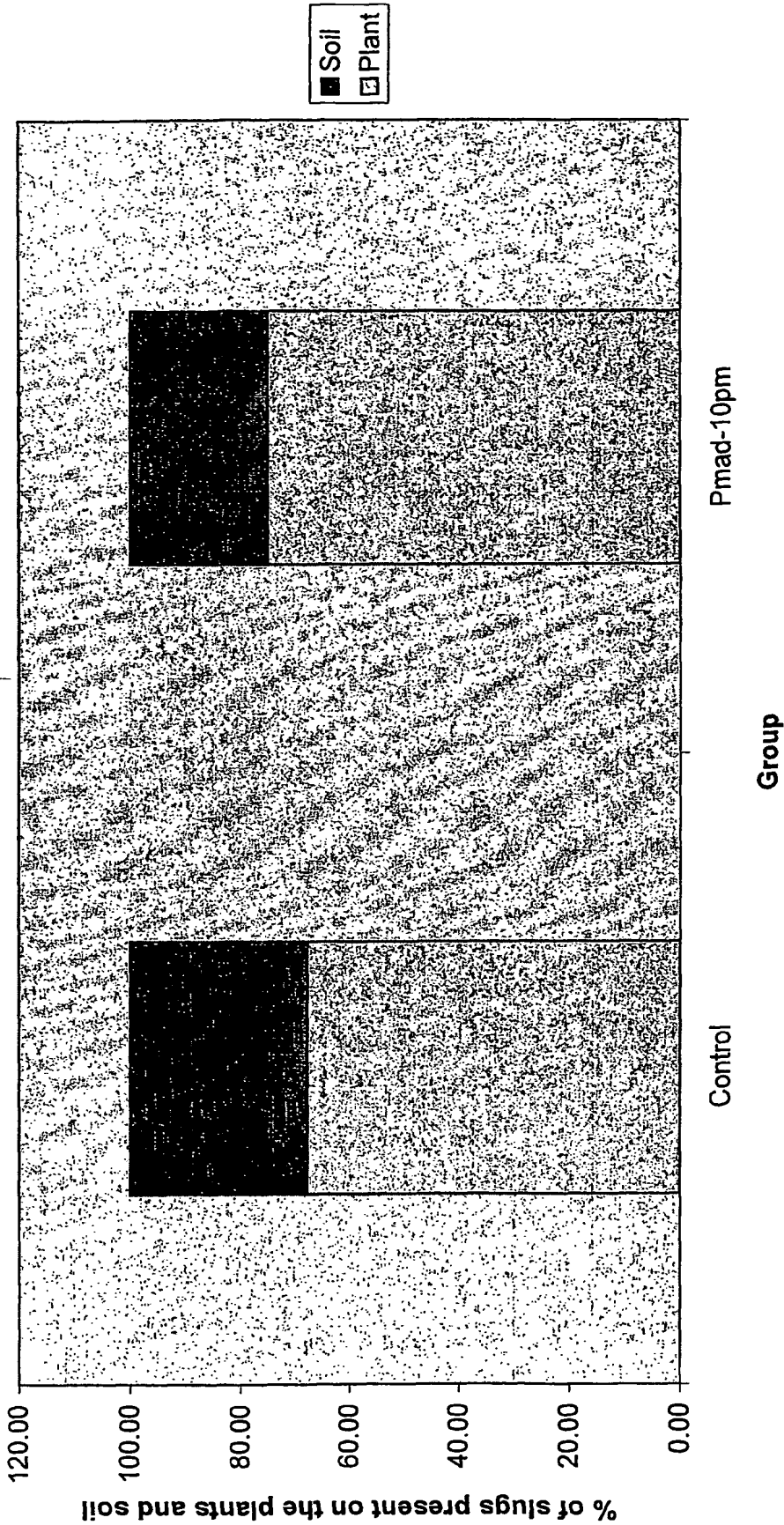


FIG 37

Glasshouse studies on day 5 to show the effects of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid) $\chi^2 = 0.455$



F1G 38

Glasshouse studies on day 5 to show the effects of *D. reticulatum* slugs after a period of 1 hour on pea plants applied with methacrylic acid $\chi^2 = 0.169$

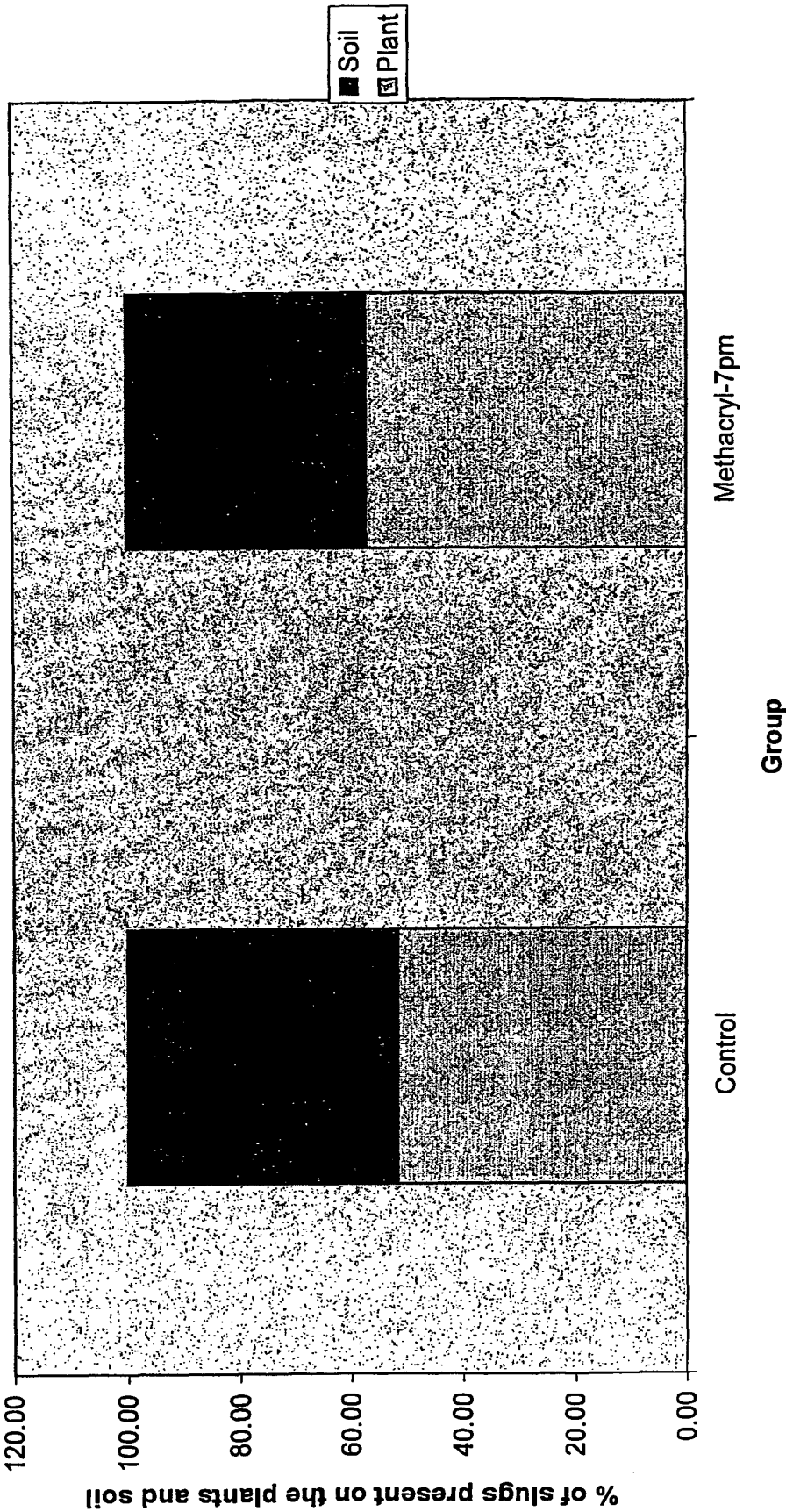
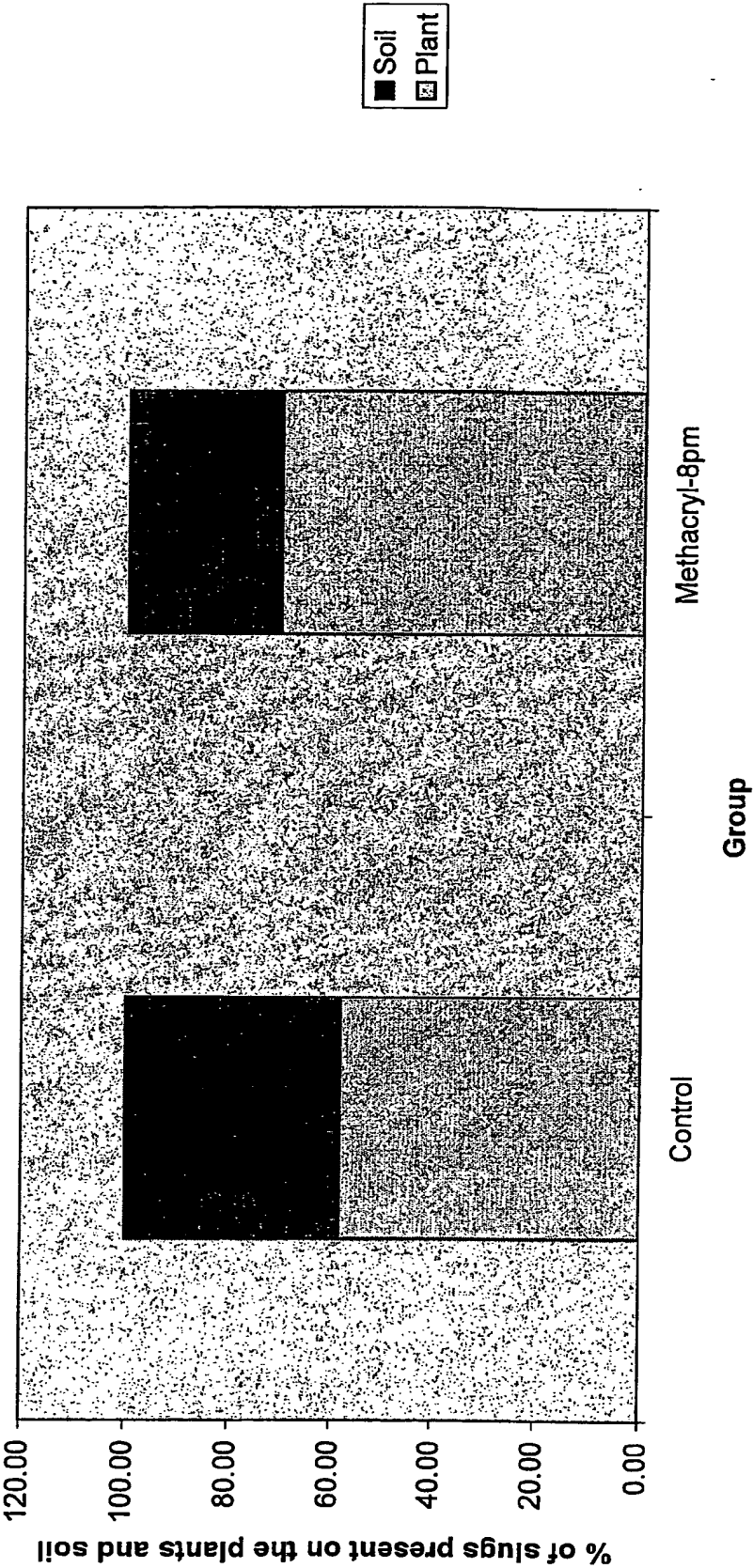


FIG 39

Glasshouse studies on day 5 to show the effects of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with methacrylic acid $\chi^2 = 0.806$



F19 40

Glasshouse studies on day 5 to show the effects of *D. reticulatum* slugs after a period of 3 hours on pea plants applied with methacrylic acid $\chi^2 = 0.000$

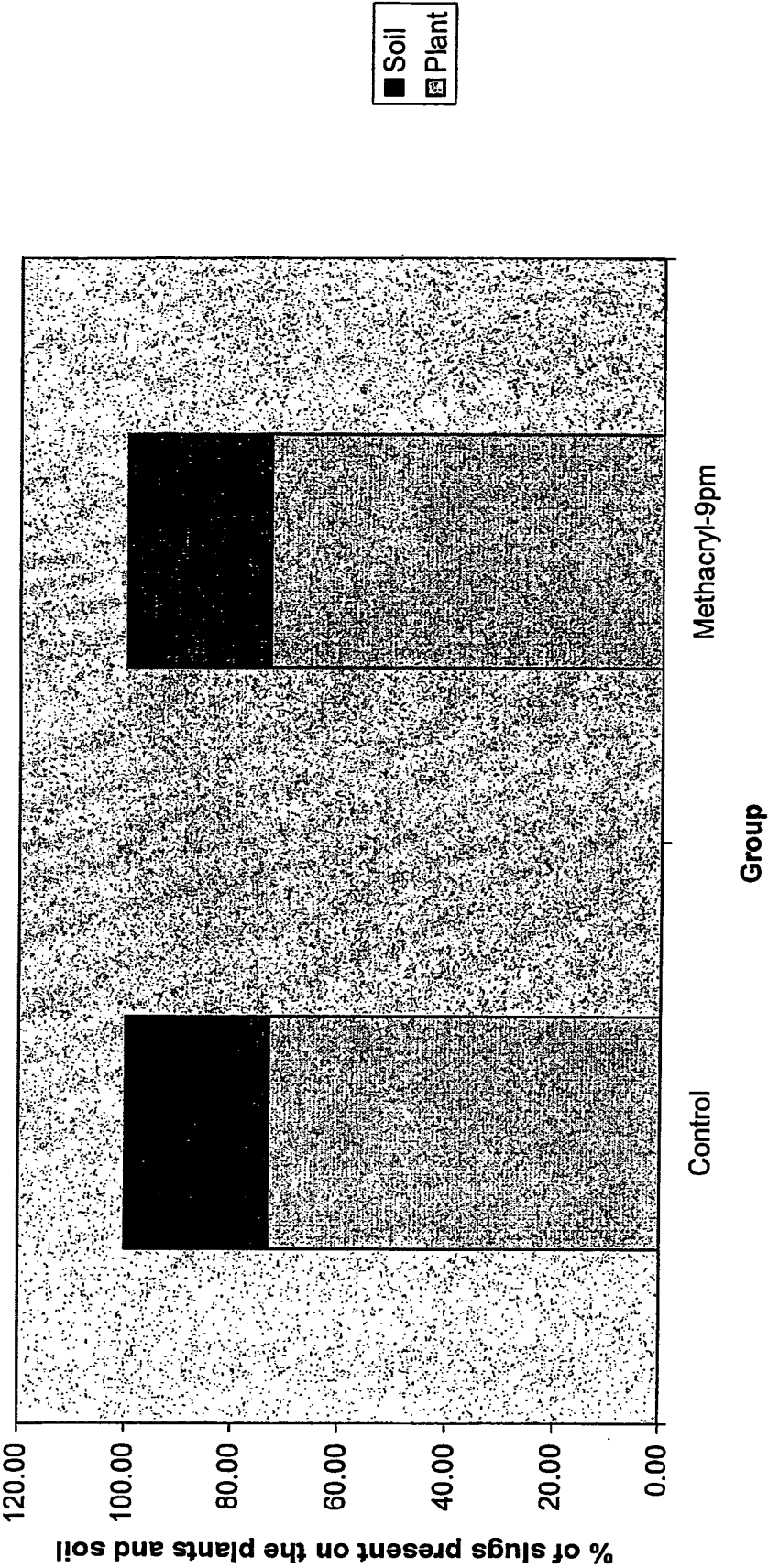


Fig 41

Glasshouse studies on day 5 to show the effects of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with methacrylic acid $\chi^2 = 0.131$

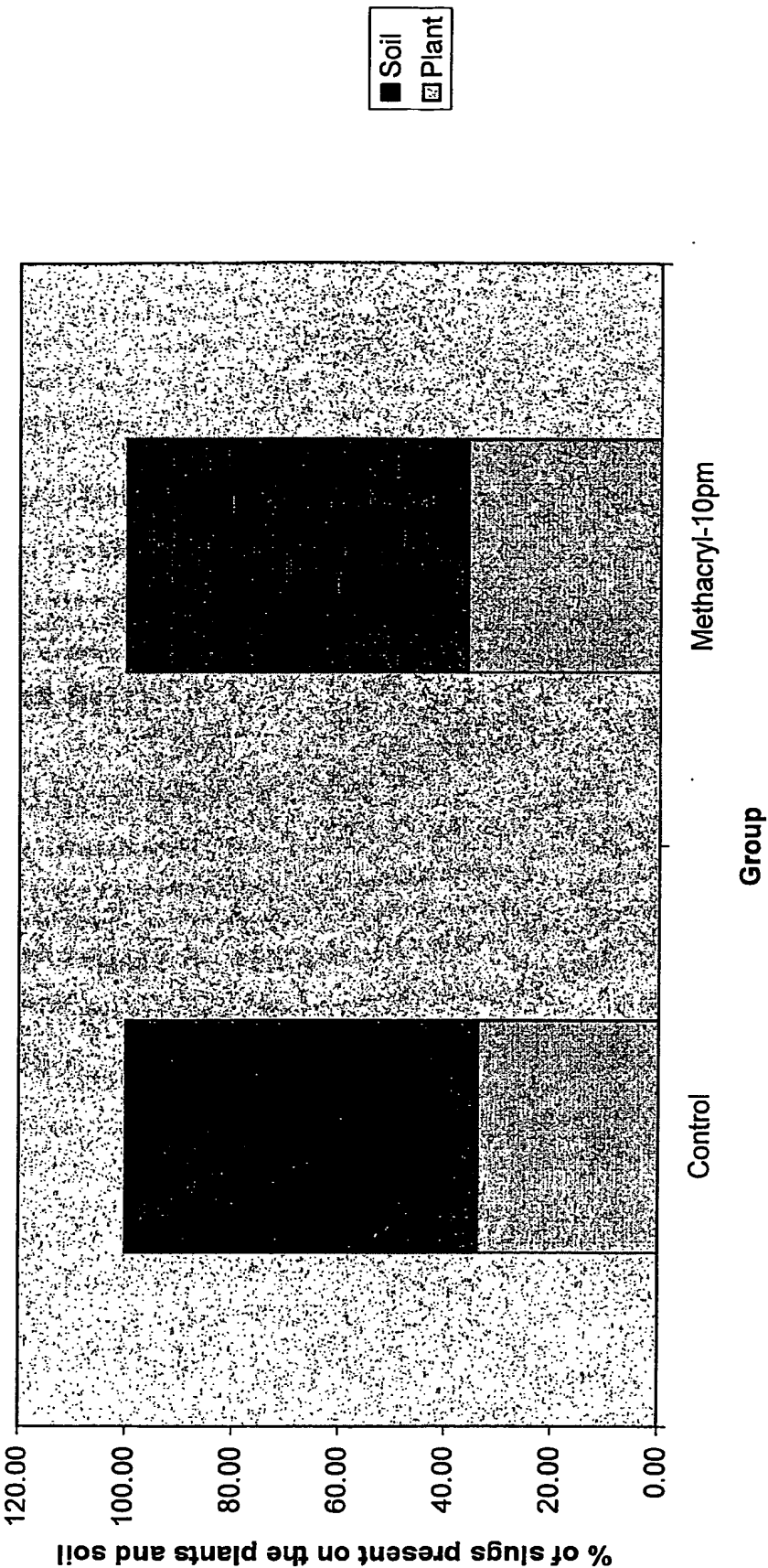


Fig A2

And eventually to prevent slugs from migrating into the
pea plants

Glasshouse studies on day 1 to show the position of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid)

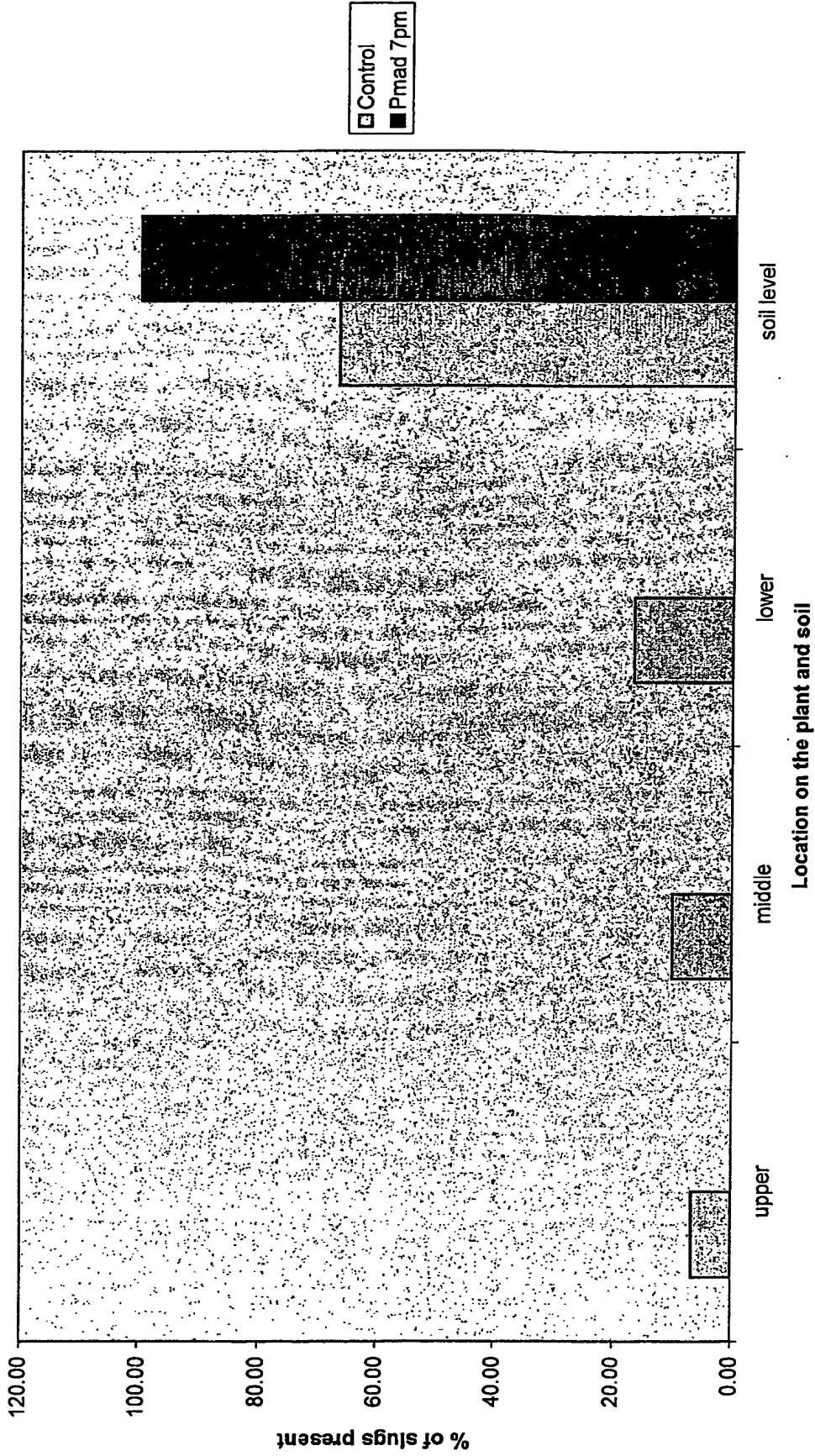
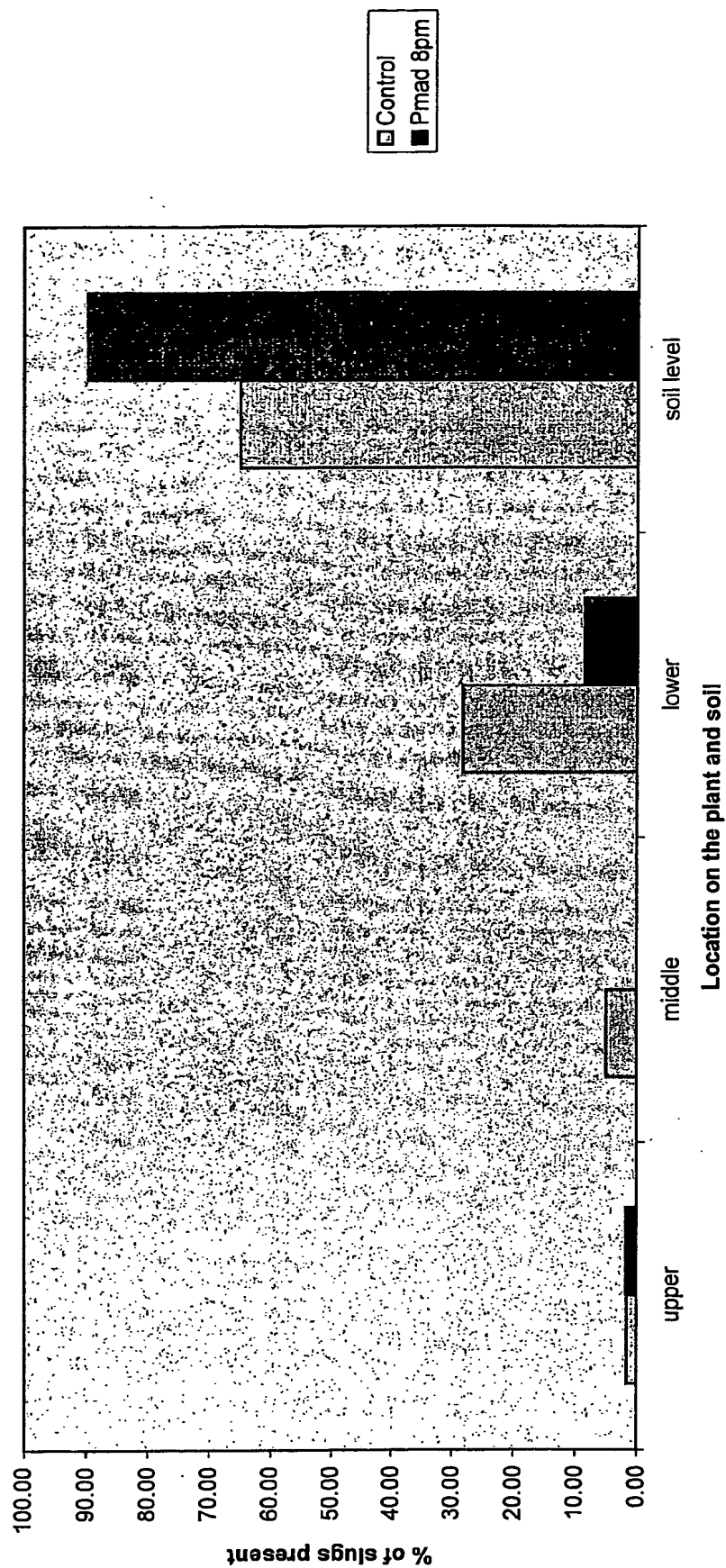


FIG 43

Glasshouse studies on day 1 to show the position of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)



F/6, 44

Glasshouse studies on day 1 to show the position of *D. reticulatum* slugs after a period of 3 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)

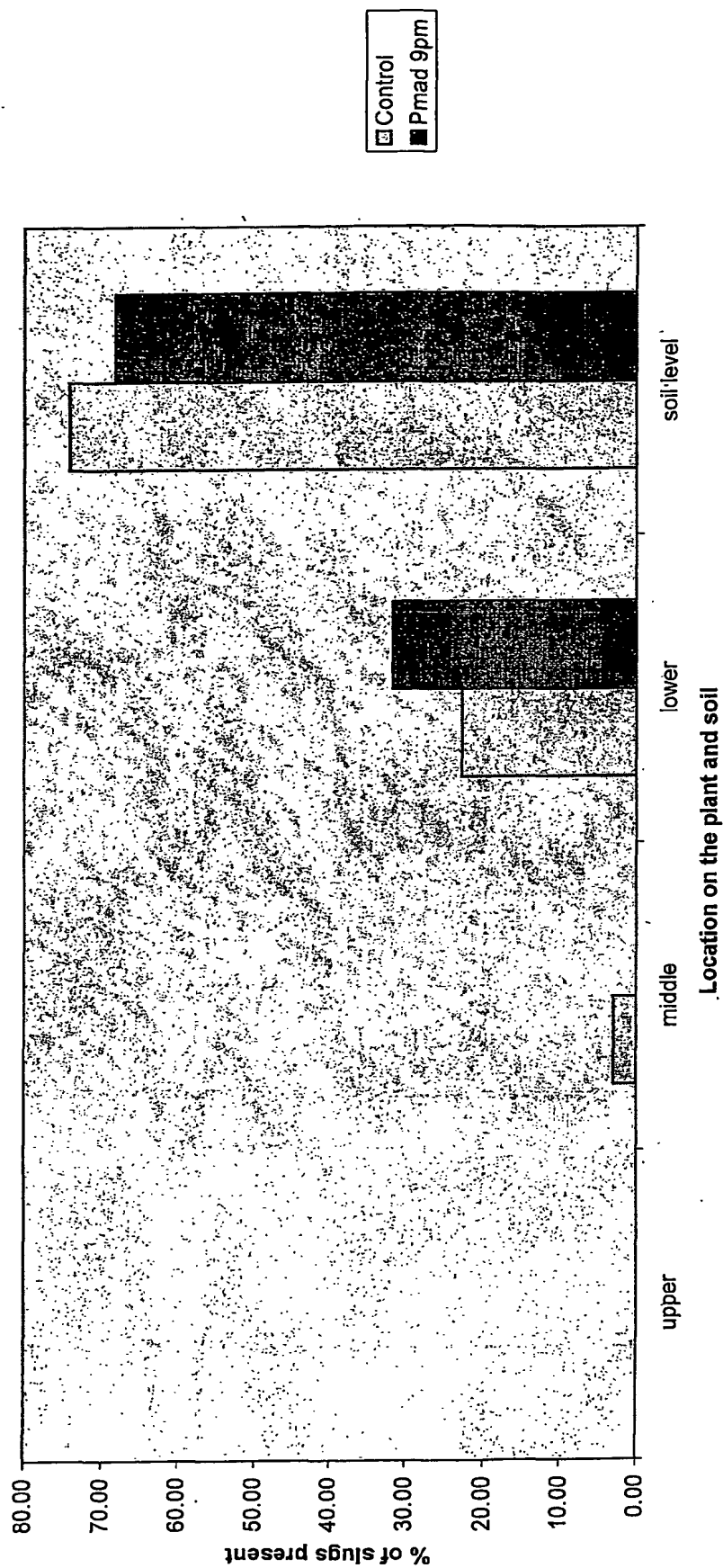


FIG 45

Glasshouse studies on day 1 to show the position of *D. reticulatum* slugs after a period of 4 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)

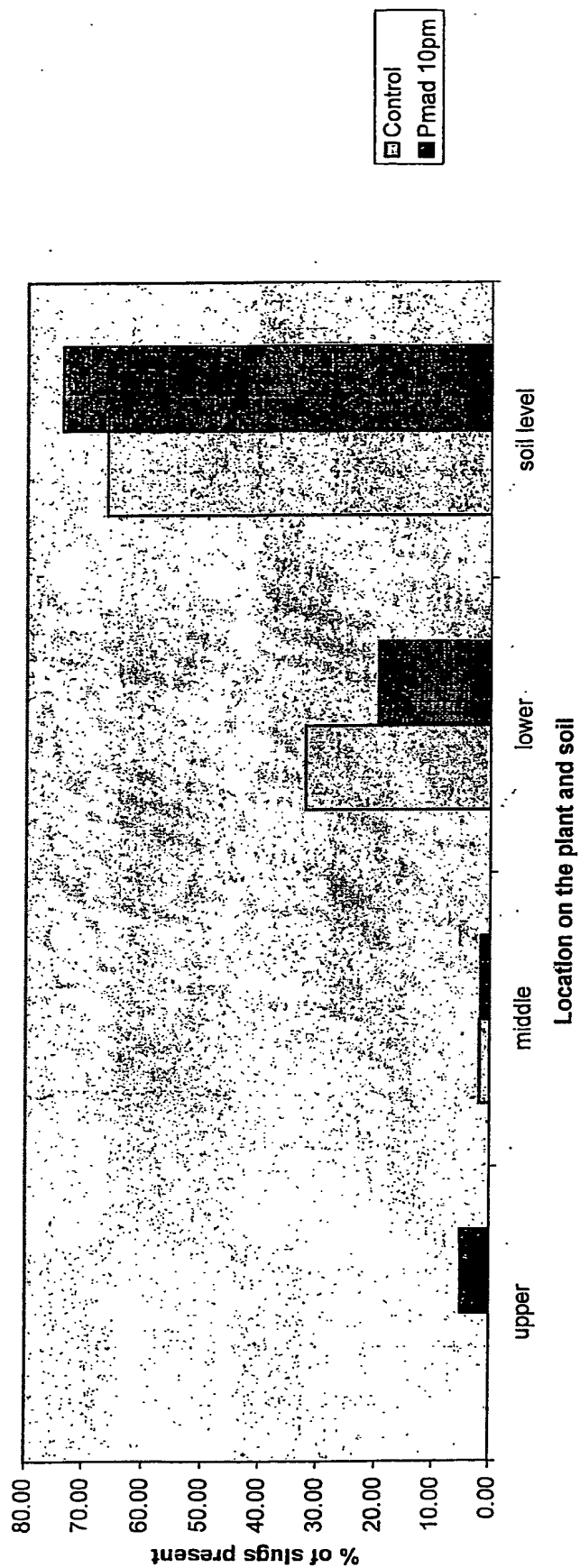


FIG 46

Glasshouse studies on day 1 to show the position of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with methacrylic acid

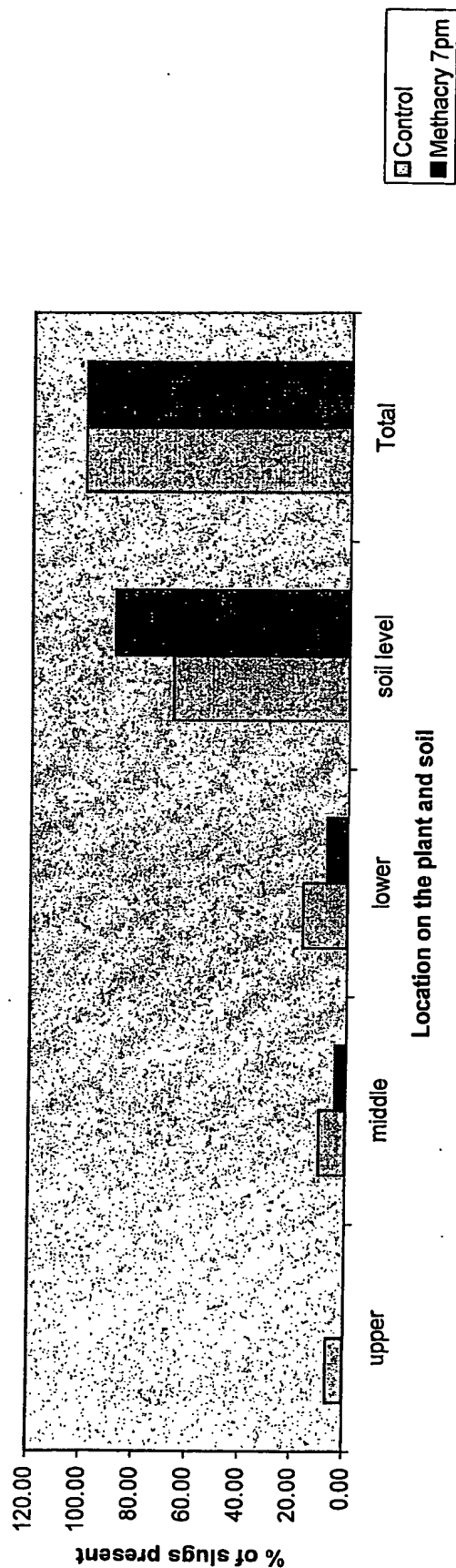


FIG 4-7

Glasshouse studies on day 1 to show the position of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with methacrylic acid

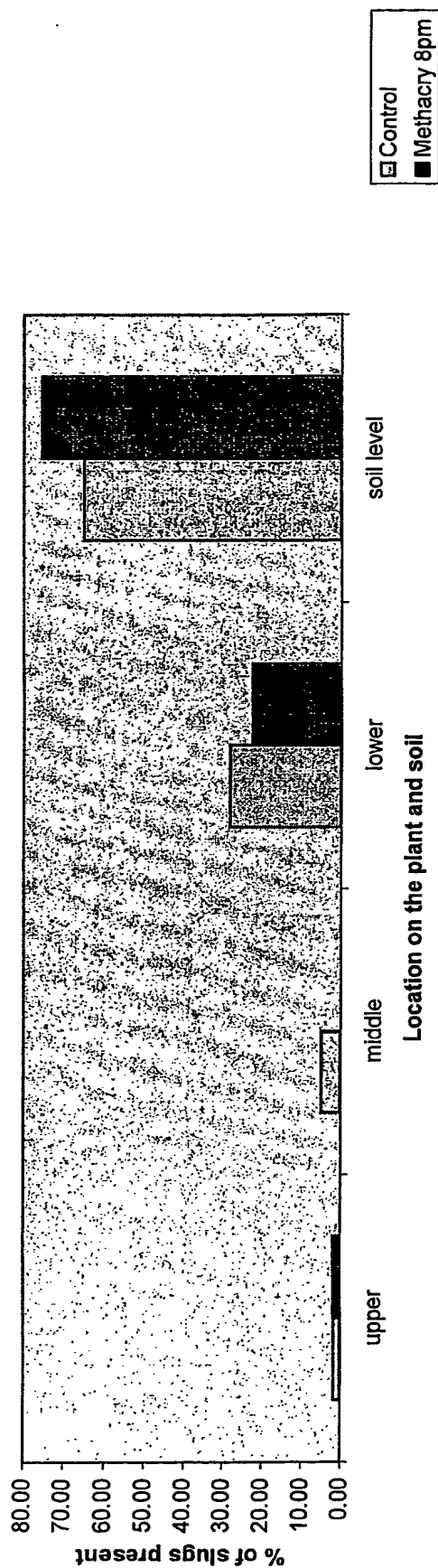


Fig 48

Glasshouse studies on day 1 to show the position of *D.reticulatum* slugs after a period of 3 hours on
pea plants applied with methacrylic acid

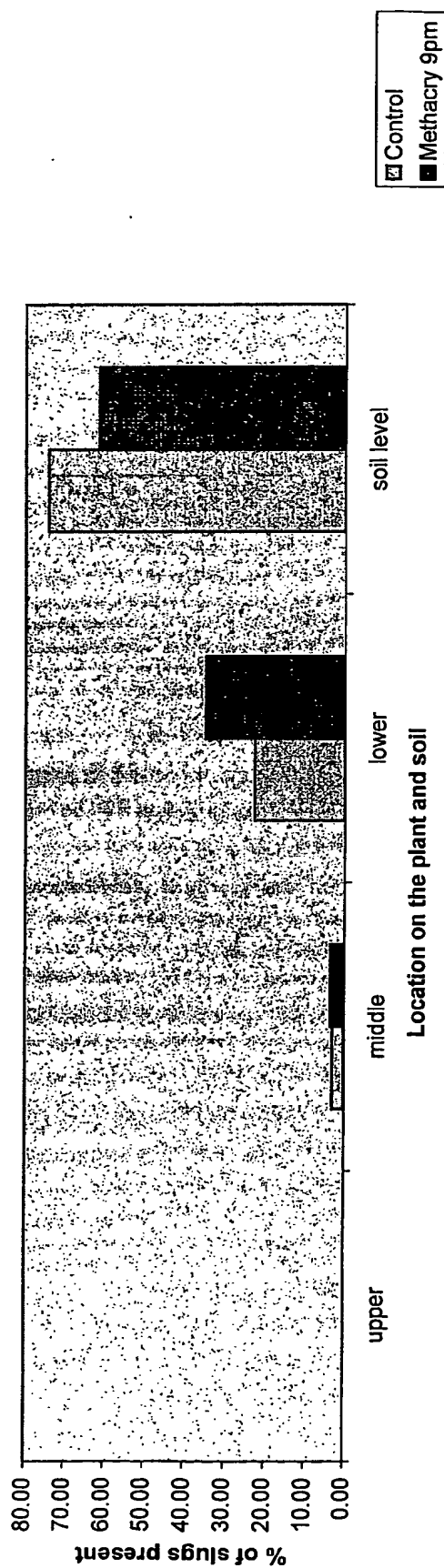


FIG 49

Glasshouse studies on day 1 to show the position of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with methacrylic acid

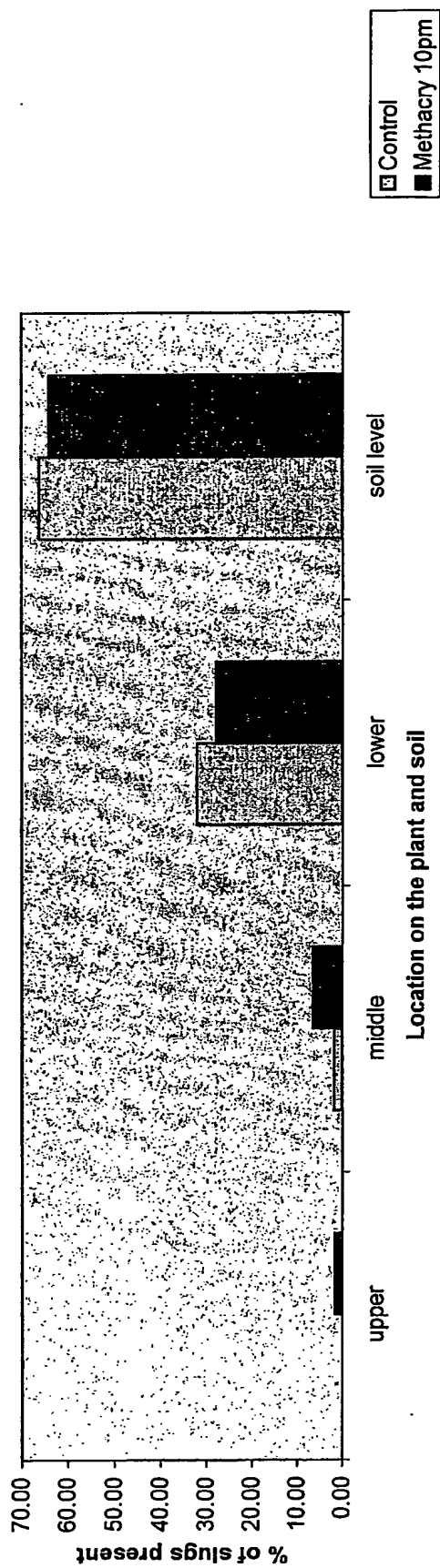


Fig 50

Glasshouse studies on day 2 to show the position of *D.reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid)

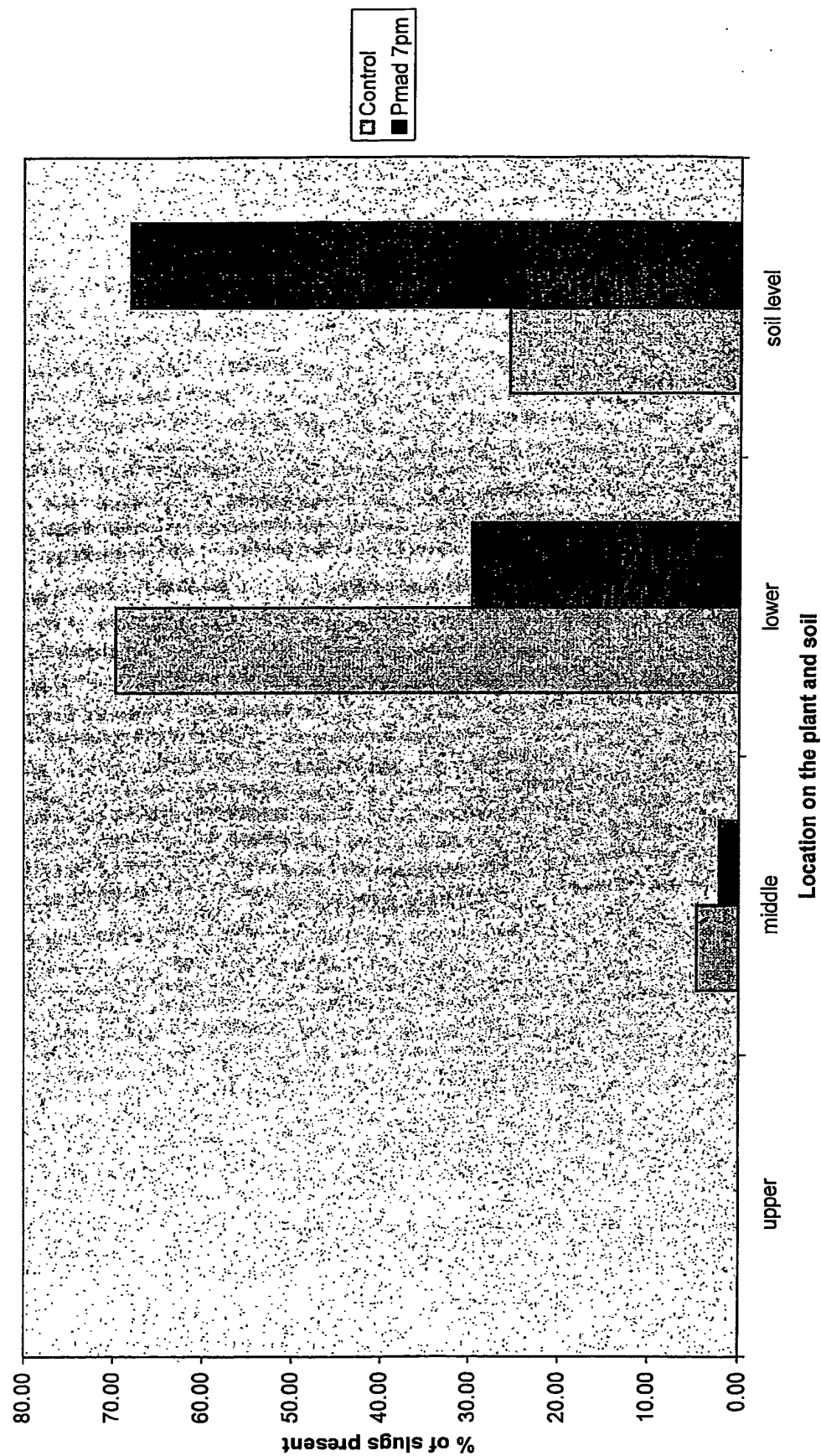


FIG 51

Glasshouse studies on day 2 to show the position of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)

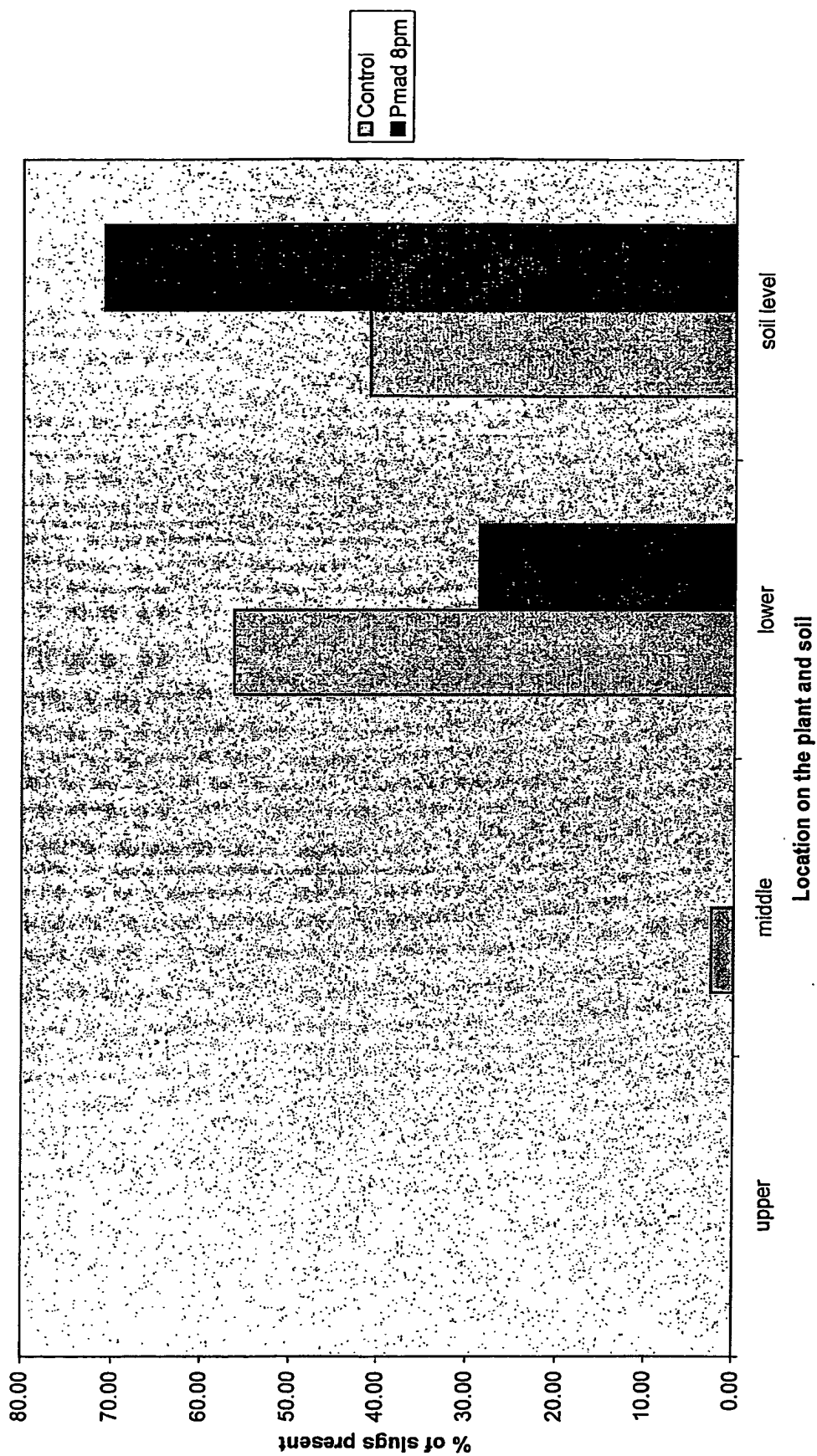


Fig 52

Glasshouse studies on day 2 to show the position of *D. reticulatum* slugs after a period of 1 hour on
pea plants applied with methacrylic acid

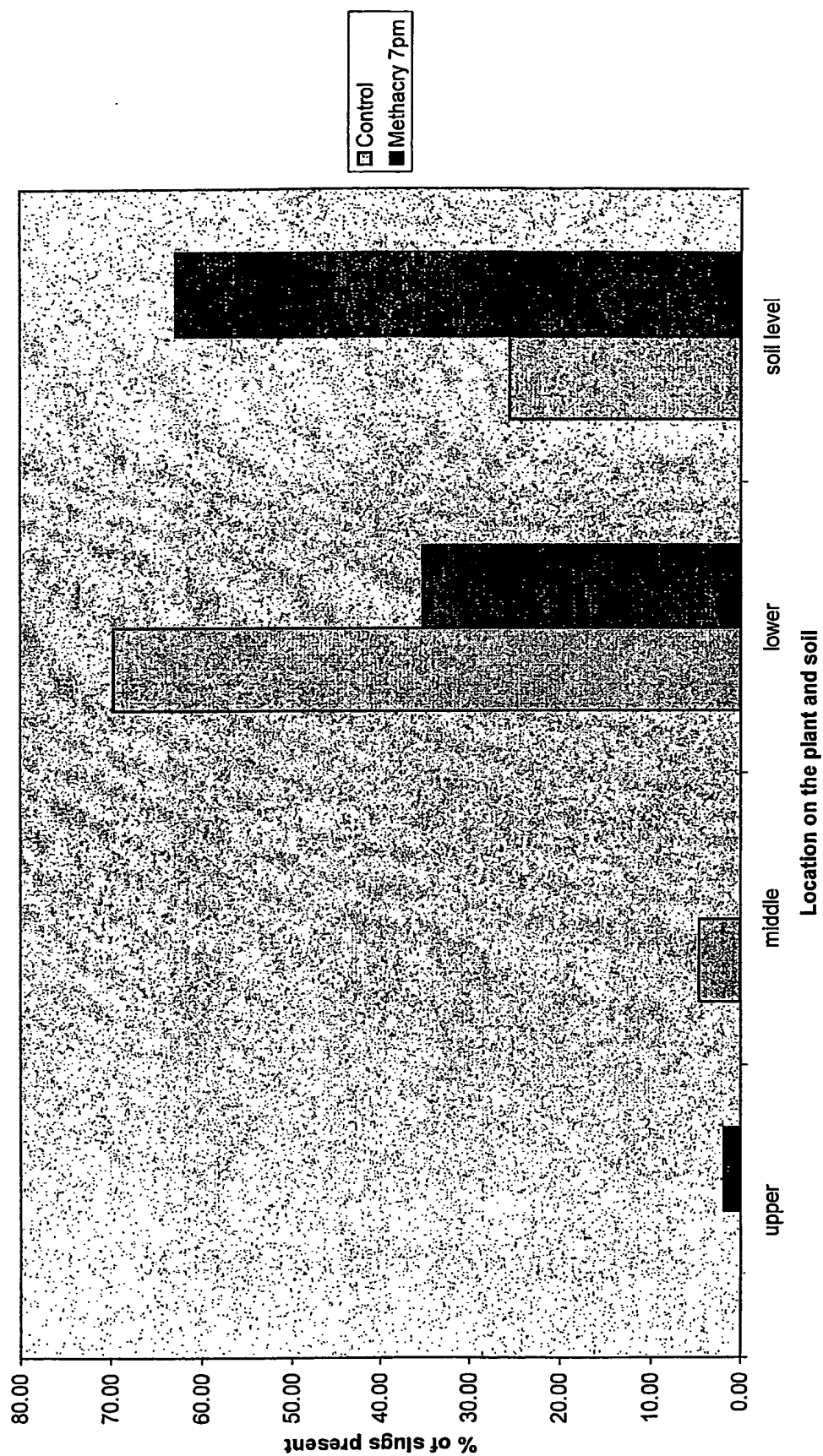


Fig 53

Glasshouse studies on day 2 to show the position of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with methacrylic acid

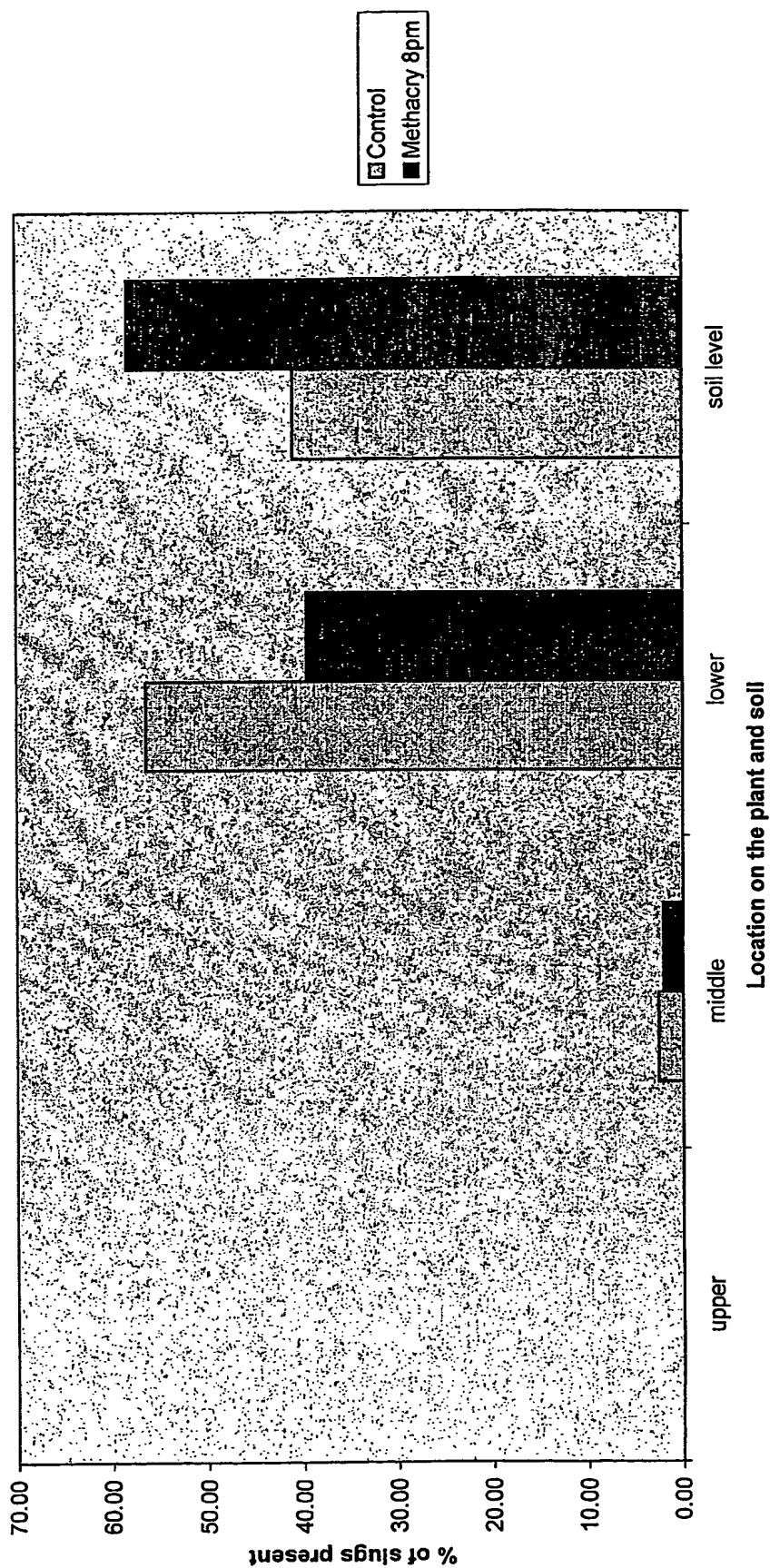


FIG 54

The good news is there is **no side effects** by these chemicals to show that beetle odours can be promoted to a new slug deterrent

Glasshouse studies on day 5 to show the position of *D. reticulatum* slugs after a period of 1 hour on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)

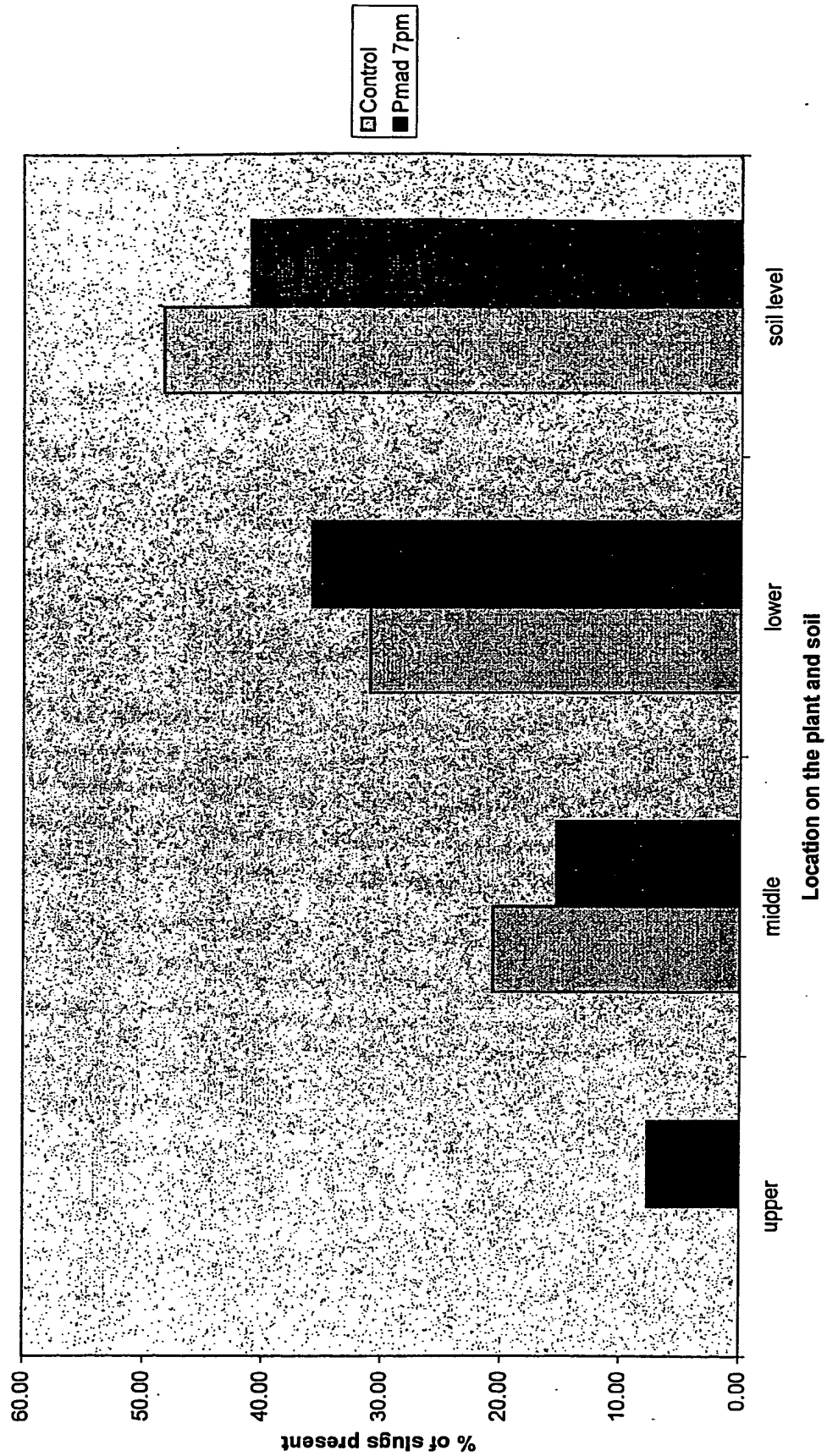


Fig 55

Glasshouse studies on day 5 to show the position of *D.reticulatum* slugs after a period of 2 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid)

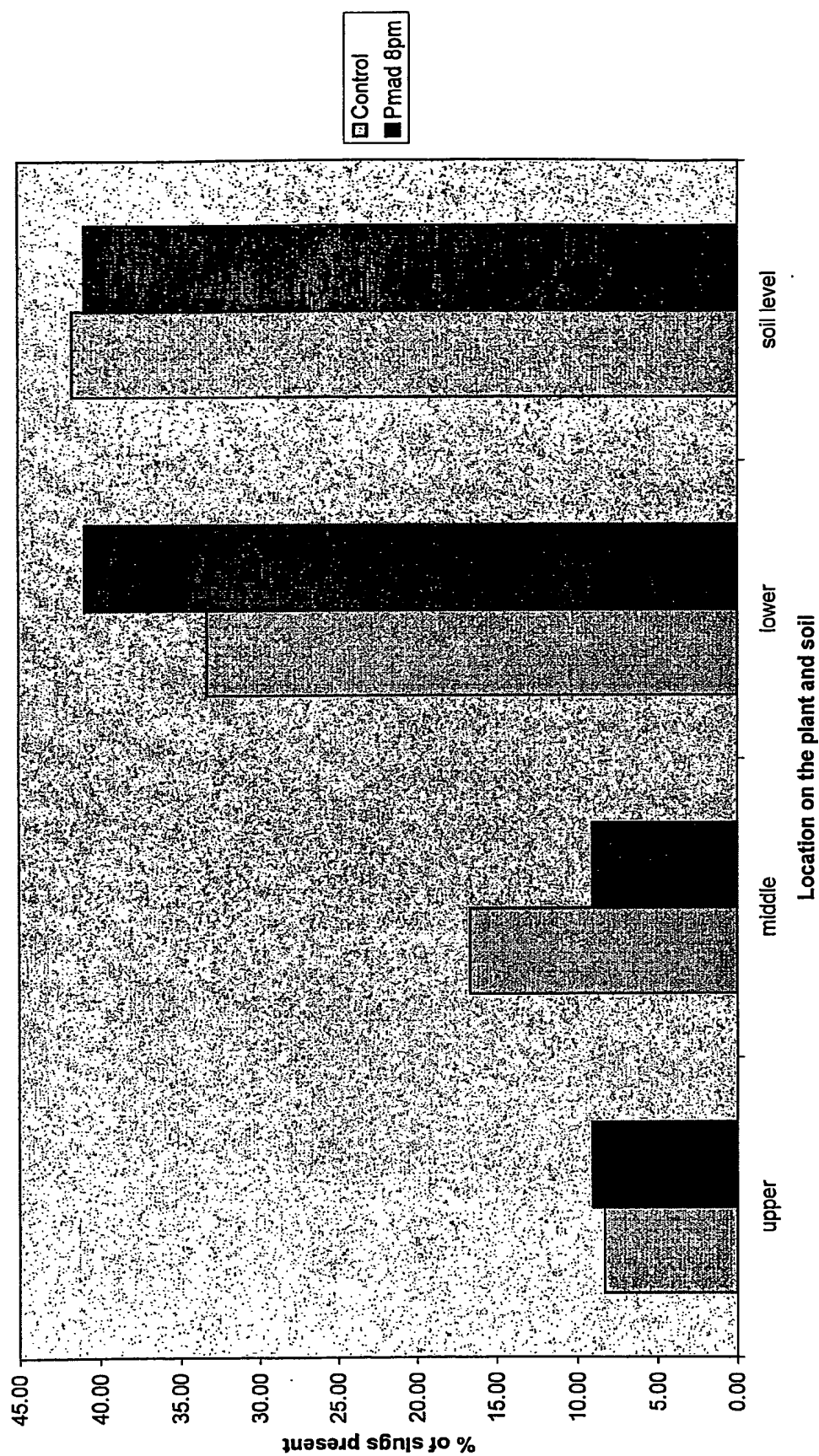


Fig 56

Glasshouse studies on day 5 to show the position of *D. reticulatum* slugs after a period of 3 hours on pea plants applied with beetle formulation of *P. madidus* (methacrylic and tiglic acid)

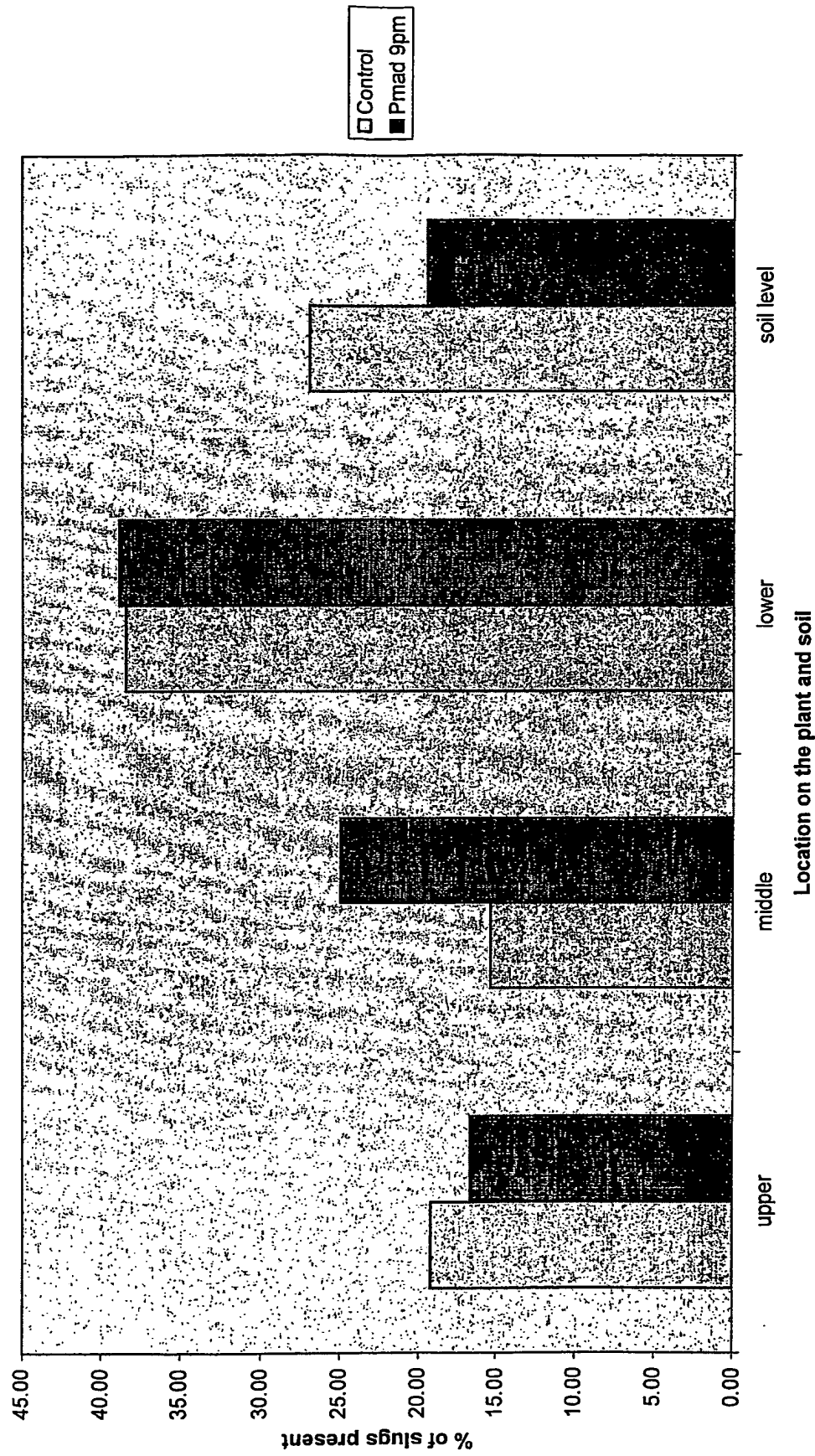
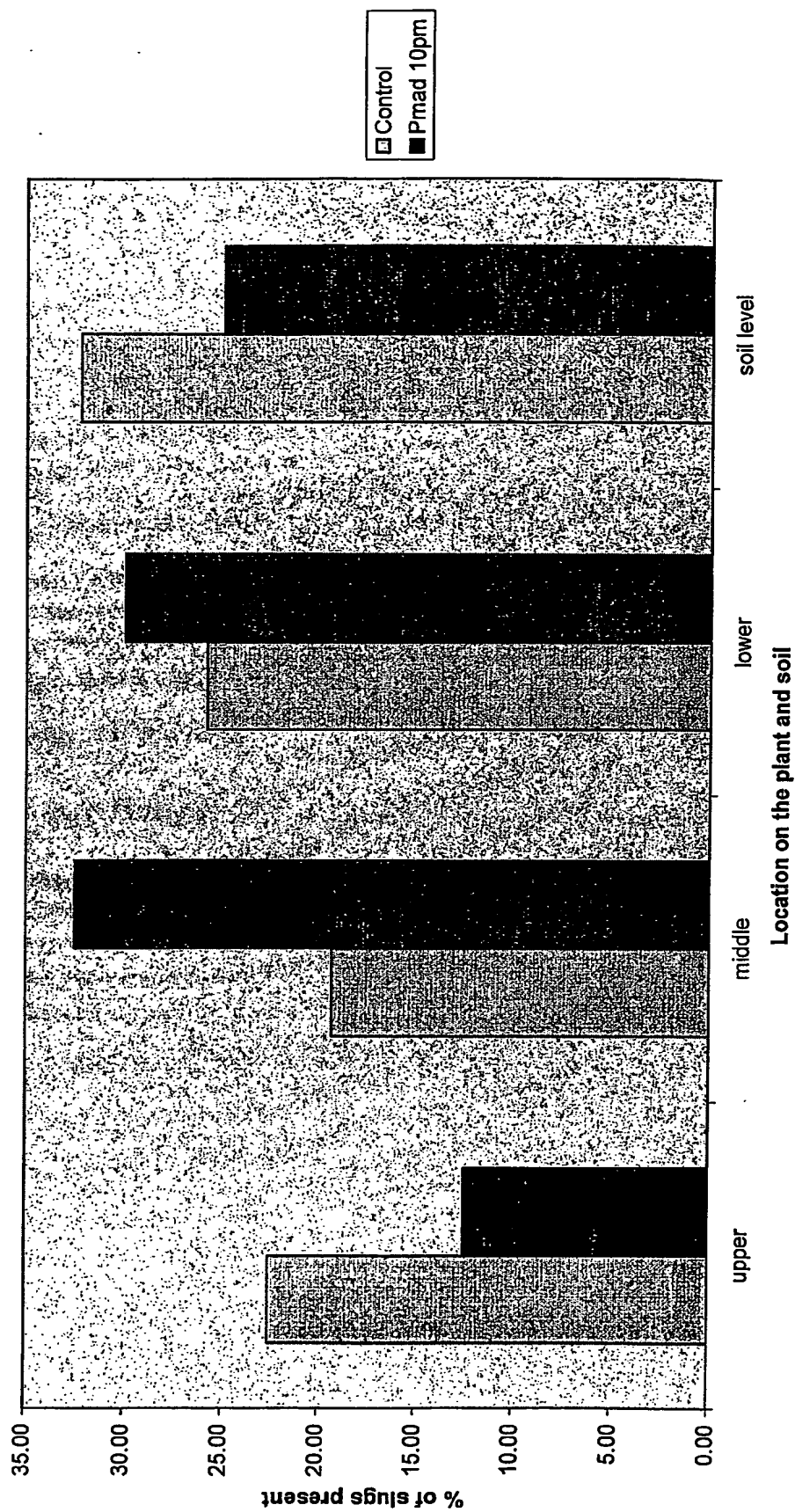


Fig 57

Glasshouse studies on day 5 to show the position of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with beetle formulation of *P.madidus*(methacrylic and tiglic acid)



F16 58

Glasshouse studies on day 5 to show the position of *D. reticulatum* slugs after a period of 1 hour on pea plants applied with methacrylic acid

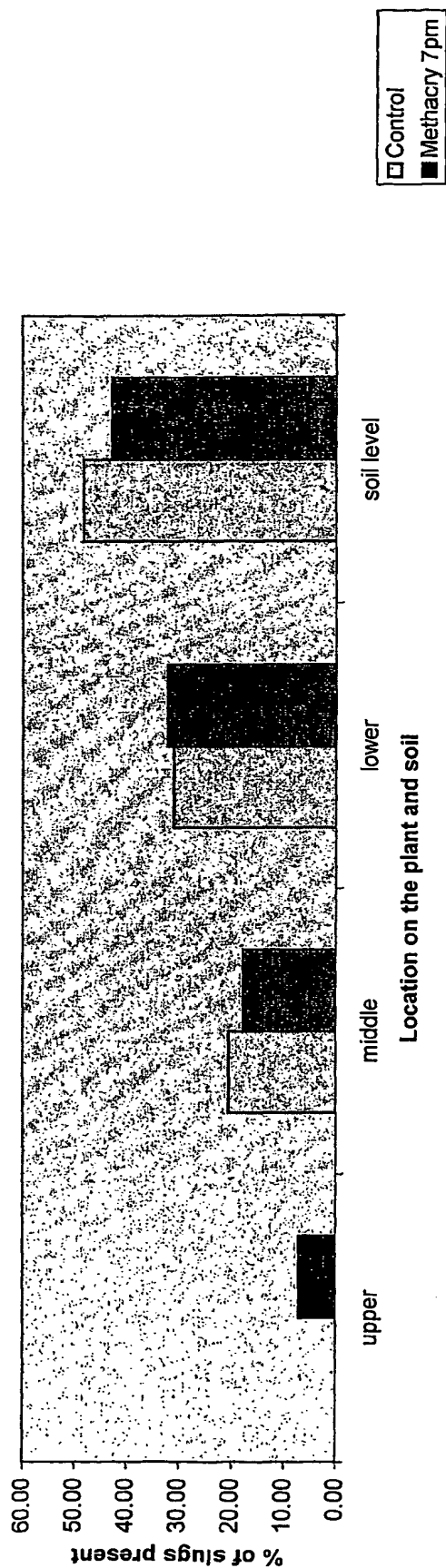


FIG 59

Glasshouse studies on day 5 to show the position of *D. reticulatum* slugs after a period of 2 hours on pea plants applied with methacrylic acid

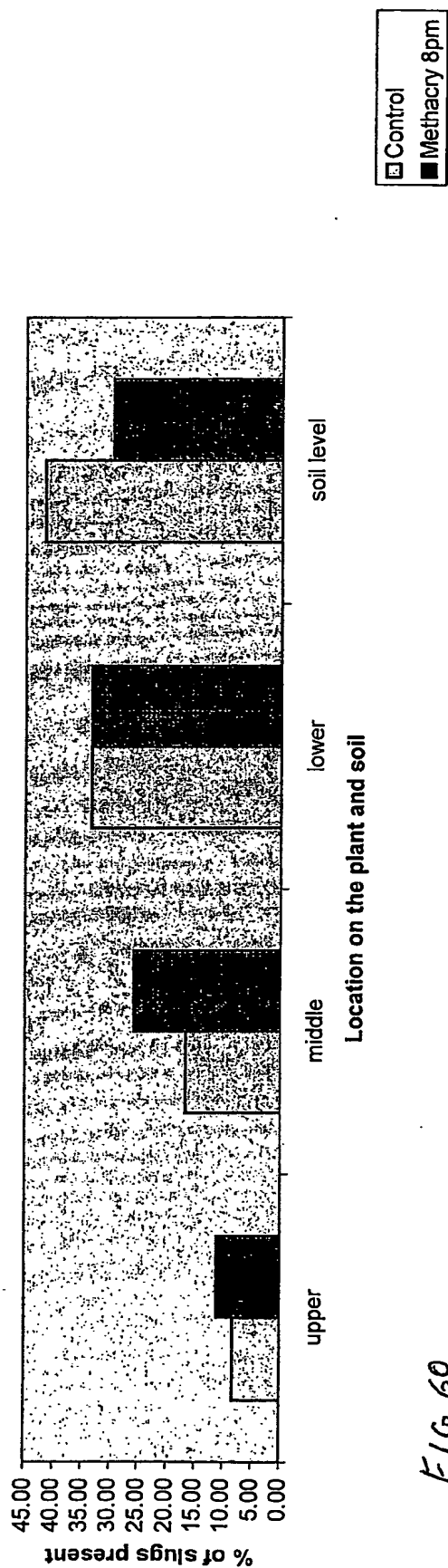


FIG 60

Glasshouse studies on day 5 to show the position of *D. reticulatum* slugs after a period of 3 hours on pea plants applied with methacrylic acid

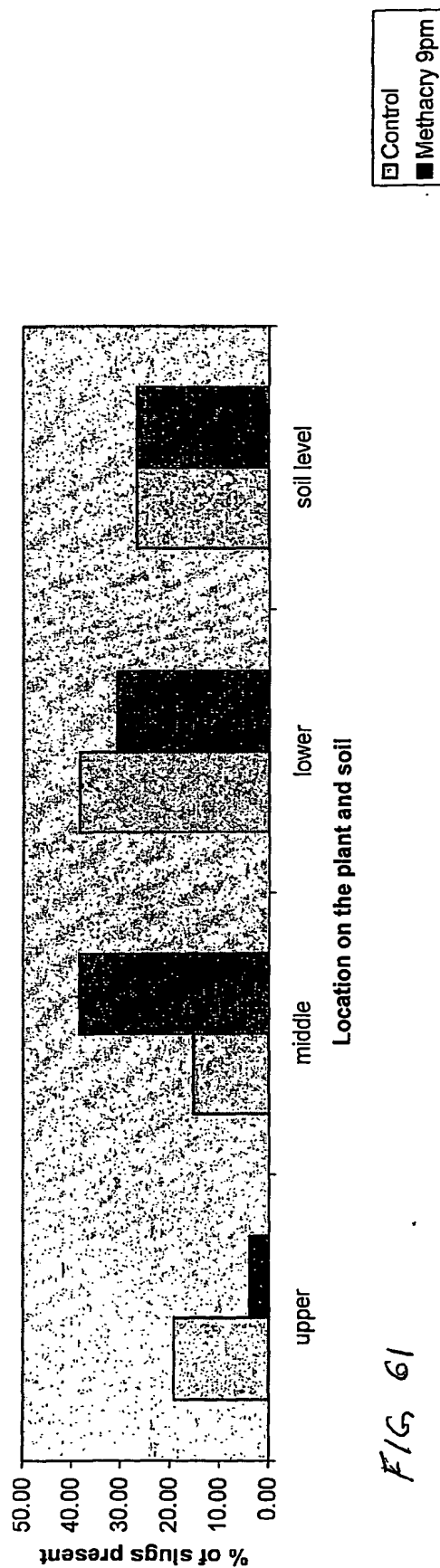


FIG 61

Glasshouse studies on day 5 to show the position of *D.reticulatum* slugs after a period of 4 hours on pea plants applied with methacrylic acid

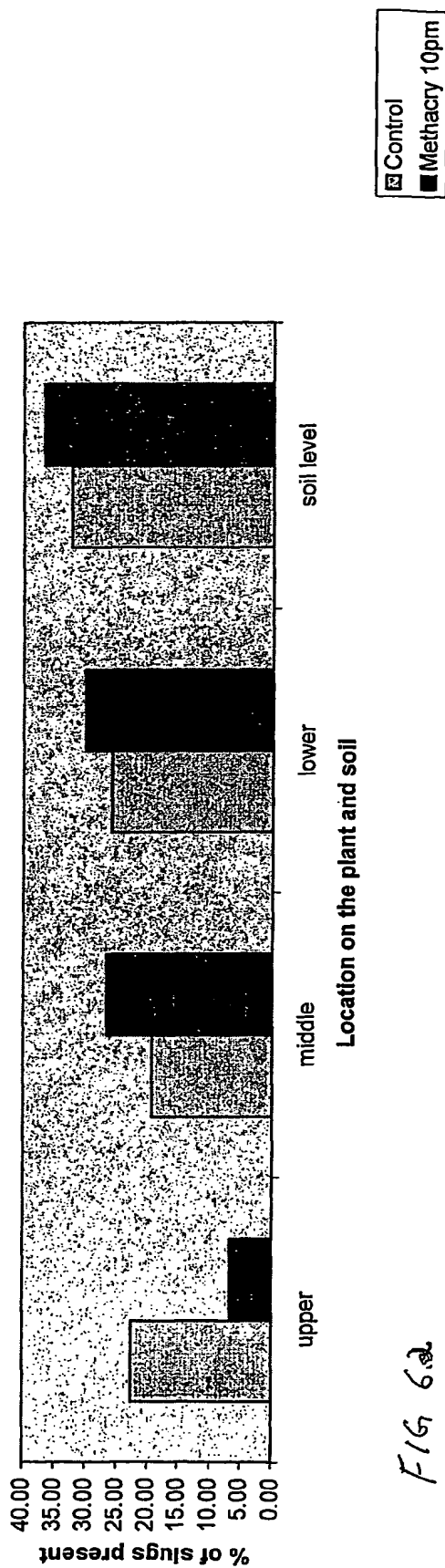


FIG 6.2

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record.**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☒ **BLACK BORDERS**

☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**

☐ **FADED TEXT OR DRAWING**

☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**

☐ **SKEWED/SLANTED IMAGES**

☒ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**

☐ **GRAY SCALE DOCUMENTS**

☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**

☒ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**

☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.